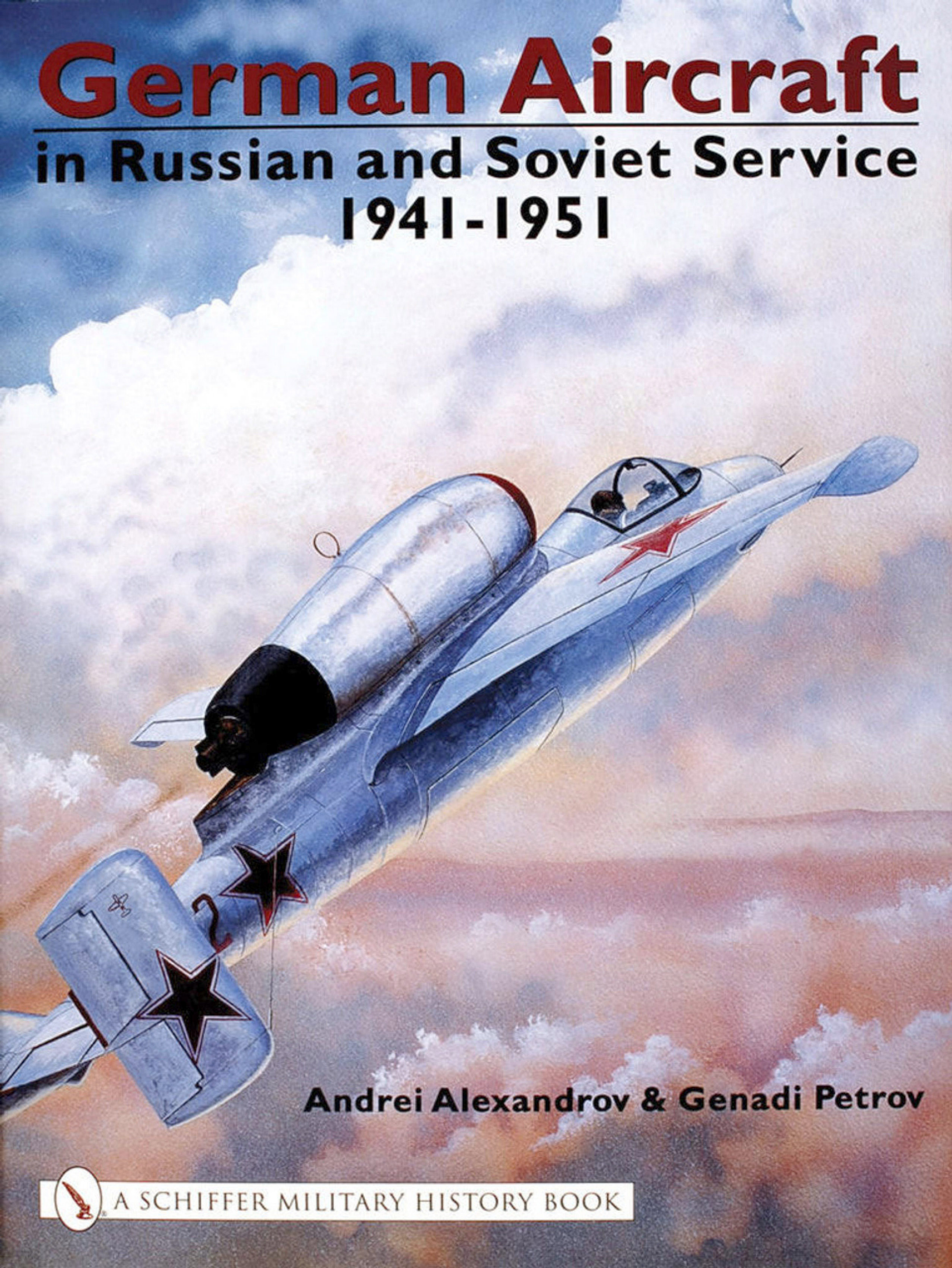
German Aircraft

in Russian and Soviet Service 1941-1951



Andrei Alexandrov & Genadi Petrov

A SCHIFFER MILITARY HISTORY BOOK

GERMAN AIRCRAFT

In Russian and Soviet Service

1941-1951

Andrei Alexandrov & Genadi Petrov

The extent to which German research and development had influenced aviation worldwide first became apparent to aviation historians in the 1960s, however their research was concentrated exclusively on the period of the Second World War and the immediate postwar years.

In the period before and during the First World War, the influence of German aviation developments was felt more in Russia and the Soviet Union than anywhere else.

From the very beginning there was an interest in acquiring German know-how, which resulted in early ties with the German aviation industry.

This cooperation continued until the beginning of the 1940s, when the terrible war between Germany and the Soviet Union abruptly ended this epoch. The effects of German-Soviet cooperation continued to be felt until 1951, however.

This book (*Volume II of a two volume set*) by authors Andrei Alexandrov and Genadi Petrov, illustrated with many previously unpublished photographs, depicts in an impressive way the blooming period of the Soviet aviation industry, which owed a great deal of its knowledge to technology derived from German designs.

German Aircraft in Russian and Soviet Service 1914-1951

German Aircraft in Russian and Soviet Service

1914-1951

Volume II: 1941-1951

Andrei Alexandrov & Gennadi Petrov

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1941-1945

Sunday, June 22, 1941, marked a turning point in the strained relationship between the Soviet Union and Germany. For millions of people it was the beginning of a period of death and destruction. Despite all the signs that war might be imminent, the German invasion took most of the citizens of both countries totally by surprise.

The Soviet air units stationed on the frontier were taken completely by surprise. This time the first air attacks were made by modern aircraft heavily armed with cannon, machine-guns, and bombs.

The element of surprise guaranteed success. Large numbers of Soviet aircraft were destroyed on the ground. The result was serious defeat, but not collapse. Some elements of the western forces were unaffected, and a number of commanders took preventive measures that minimized the effects of the German attacks. A large number of machines were located in the rear areas of the vast Soviet Union and thus survived the initial assault.

A new war required a reevaluation of the enemy's technical potential. During the war, even in desperate situations the Soviet Union made no serious effort to copy captured machines or employ them in significant numbers. This was one principal difference from Russia's effort in the First World War.

The Supply Company aviation industry proved capable of understanding and meeting the air force's problems and requirements. Aircraft delivered under the Allied aid plan played an important, but not a decisive role. Captured enemy aircraft were seldom used by front-line units, and then usually in the reconnaissance role. We know of one incident from the memoirs of the second-ranking Soviet ace, A.I. Pokryshkin.

In April 1942 the Air Force High Command decided to equip a squadron based in Novocherkassk with captured Messerschmitts for special missions. The command staff consisted of Pokryshkin and one other pilot. The squadron was commanded by Major Telegin and had on strength two machines. The Messerschmitts had been delivered to the Soviets by two deserting Slovakian pilots who unfortunately belly-landed their aircraft.

Following minor repairs, Pokryshkin made several familiarization flights. His impressions were identical to those of the test center. He had particular praise for the lightness of the control forces and was impressed by the Messerschmitt's armored windscreen and radio equipment.

In Pokryshkin's opinion, the German fighter's main disadvantages compared to the MiG-3, which he usually flew, were its poor diving characteristics and its slow pull-out from dive to climb.

Pokryshkin made several reconnaissance flights over Taganrog. The aircraft wore Soviet insignia on the wings and fuselage.

The pilots very much disliked the missions in the captured aircraft. It was felt that they would stand very little chance of surviving if captured. There were also fears that they might be shot down by Soviet defenses.

One of the machines was forced down near Soviet lines. Infantry arrived on the scene and roughed up the pilot in spite of the Soviet markings.

At the end of 1941 the test pilot Fiodor Opadchi organized a mixed reconnaissance unit equipped with twelve captured German aircraft—Ju 88s, Do 215s, Bf 110s, and Bf 109s. It is very likely that these were aircraft previously purchased from Germany.

The use of German aircraft was probably more due to a shortage of suitable Russian machines than any attempt to achieve surprise. Captured aircraft were also used by transport and communication units. Their use was likely problematical because of the lack of suitable fuel and lubricants and necessary spare parts.

Soviet technicians repaired approximately eighty Ju 52/3m transports in the period after Stalingrad. The machines were then employed as civil transports in Siberia. During the attempt to supply the German 6th Army from the air, the German air force lost 266 Ju 52/3m, 165 He 111s, 42 Ju 86s, 9 Fw 200s, 5 He 177s, and 1 Ju 290.

Several flyable He 111s were captured on airfields around Stalingrad. They were subsequently employed as glider tugs by the Saratov gliding school beginning in spring 1943. Most captured enemy aircraft, however, were assigned to the NII VVS, which carried out evaluations and passed its findings along to the front-line units.

In the second half of 1943 the first two training and indoctrination films were made, titled "The Messerschmitt Bf 109" and "Air Combat between the Bf 109 and the La-5." They were conceived as training material for the flying schools. In a letter to the head of the NII VVS, General P.A. Losiukov, the commander of the 3rd Air Army, General Papivin, wrote that the films had proved extremely informative to the fighter units, and also to the upper command echelons of other air force units.

The results of flight trials with foreign aircraft were passed on to the aviation industry. In 1938 and 1940 the NII VVS was given the opportunity to examine various versions of the Bf 109 (Bf 109 B-1 and E-3).

When the war started it had to be assumed that German units had been equipped with more modern versions of the Messerschmitt fighter. It was some time before one of these was captured. Furthermore, on 11 October 1941, during the relocation of the NII VVS, the test facility's Bf 109 E crashed, killing test pilot T.K. Chigarev.

The Soviet Air Force finally obtained an example of a late-model Messerschmitt when a Bf 109 F-2 was forced to make an emergency landing near Moscow after suffering hydraulic-electrical failure. The aircraft was repaired and tested. The results were extraordinary. Even before the conclusion of testing, the director of the NII VVS, General Fiodorov, sent a letter to the Deputy People's Commissar of the Aviation Industry for Aviation Development, in which he stated:

At present the Soviet Union does not possess an aircraft with a performance equal to or even approaching that of the Bf 109 F.

The Bf 109 G-2 appeared for the first time in the summer of 1942. Information passed to the NII VVS by the front-line units prompted those responsible to send a letter to Stalin on 23 October 1942, requesting that the development of all-metal fighters be accelerated in the spring of 1943. In spite of this, no such aircraft appeared before the end of the war. The Soviet aviation industry continued producing mainly aircraft of mixed construction with a high proportion of wood components.

This was keeping with the traditions of the Soviet aviation industry, and changing technologies in wartime entailed risks. Soviet designers achieved a high degree of performance using these construction methods. For example, the performances of the La 7 and Yak 3 were comparable to those of their foreign contemporaries.

Many *Luftwaffe* aircraft passed through the NI VVS. The first was the previously mentioned Bf 109 F-2. It is interesting to note that at least one machine was sent to the USA, a gesture of gratitude for Allied support.

During the offensive at Stalingrad Soviet forces captured a Bf 109 G-2/R6. Toward the end of 1942 A.G. Proshakov ferried the machine to one of the NII VVS airfields near Moscow. The machine bore the serial number 13903 and was armed with MG 151/20 cannon in underwing gondolas.

Trials revealed that the machine's stability and maneuverability had been significantly degraded due to its increased weight. As well, it was found that the undercarriage lacked stability.

A similarly-equipped Bf 109 G-2, *Werknummer* 14513, was later received by the NII VVS.

In October 1943 test pilot A.G. Proshakov had the opportunity to test fly a Bf 109 G-4 (*Werknummer* 19968). Also tested at the end of the war was a Me 410 B-2 equipped with a 50-mm cannon. It was the last piston-engined fighter tested in Moscow.

Another fighter that sparked great interest was the Fw 190. At the beginning of 1943 this type was still a great secret to the Soviets.

On 16 January 1943 Uffz. Brandt of JG 54 made a forced landing on frozen Lake Ladoga after his synchronization gear failed, causing him to shoot off parts of his own propeller. The aircraft, a Fw 190 A-4 (*Werknummer* 2310), was checked out by test pilot Ju.A. Antipov and engineer P.S. Onoprienko.

The machine made a very good impression. Features that were praised were its relatively simple design, good systems integration, automatic engine and propeller controls, general equipment, outstanding view from the cockpit, and heavy armament. Seen as negative points were its high weight, excessive takeoff and landing distances, and poor maneuverability. The comment on the type's maneuverability must be viewed against the Soviet doctrine of light and highly maneuverable fighter aircraft. There was no place for heavy fighters in this scheme. The feature of the Focke-Wulf which most impressed the Soviets was its diving ability, which far surpassed that of any Soviet aircraft. No Soviet fighter could keep up with the Fw 190 even in level flight. Many Fw 190s were equipped with water-methanol injection (MW 50), which significantly increased engine output.

The Fw 190 continued to cause a stir at the test center throughout the war. In August 1943 it received a Fw 190 A-5 with heavier wing-mounted armament and additional armor.

This was followed in December 1944 by a Fw 190 A-8/R6 with heavier armor, greater fuel capacity, and bolstered armament. Another Fw 190 A-8 (*Werknummer* 580967) was received that carried the relatively lightly armament of just two MG 151/20 cannon in the wing roots and two heavy machine-guns in the fuselage. The aircraft's fuel capacity, and consequently its weight, were also reduced. This aircraft was flown by various test pilots in mock combats.

In the spring of 1945 test pilot V.E. Golofastov flew a Fw 190 D-9 powered by the Jumo 213A engine. The aircraft achieved a speed of 624 km/h at a height of 5,000 meters. Takeoff weight was 4,197 kg.

In addition to the aircraft described here, it is possible that other types were tested by the NII VVS. Captured German bombers and reconnaissance aircraft were also taken to Moscow.

On 25 March 1943 the test center received two He 111s. One of the aircraft, a He 111 H-6, was damaged soon afterwards. The second, however, underwent extensive trials until May 1943.

The Soviet test pilots complained about the type's lack of speed, poor rate of climb, service ceiling, and insufficient range. The type's defensive armament was found to be inadequate, even though it was heavily armored and armed with five 7.92-mm machine-guns, one heavy machine-gun, and a cannon.

Positive comments were made about its light control forces, good takeoff and landing characteristics, excellent view from the cockpit, and its modern radio and navigational equipment.

In the spring of 1943 a Ju 87 D-1 divebomber was sent from the Stalingrad area. The Soviets had not purchased the divebomber in 1940 as, based on experience in Spain, it was thought to be obsolescent. The type nevertheless proved to be an accurate bombing platform, and later versions carried a payload similar to that of the Pe 2, a Soviet twin-engined bomber.

The Ju 87 D first appeared on the Eastern Front in 1942. Trials conducted in 1943 showed that its was faster than the earlier variants, carried a greater payload, and was equipped with improved armor and defensive armament.

A Ju 87 G anti-tank aircraft was captured during the Battle of Briansk. The machine had no bomb racks, and the machine-guns and dive brakes had been deleted. In their place, two 37-mm Rheinmetall cannon had been installed beneath the wings. This resulted in a significant reduction in speed and maneuverability. Captured with the aircraft was Hans Trenkmann, an experienced test pilot with the flight test center at Rechlin.

Examples of the Fw 189 reconnaissance aircraft also fell into the hands of NII VVS specialists. Outstanding maneuverability and an excellent view from the cockpit characterized this machine. Its comfort and excellent reconnaissance equipment were also highly thought of. The Soviet pilots gave it the nickname "Flying Window Frame."

Another Focke-Wulf type tested in the USSR was the Fw 200 C-3. The Soviets were not impressed with the aircraft as a bomber.

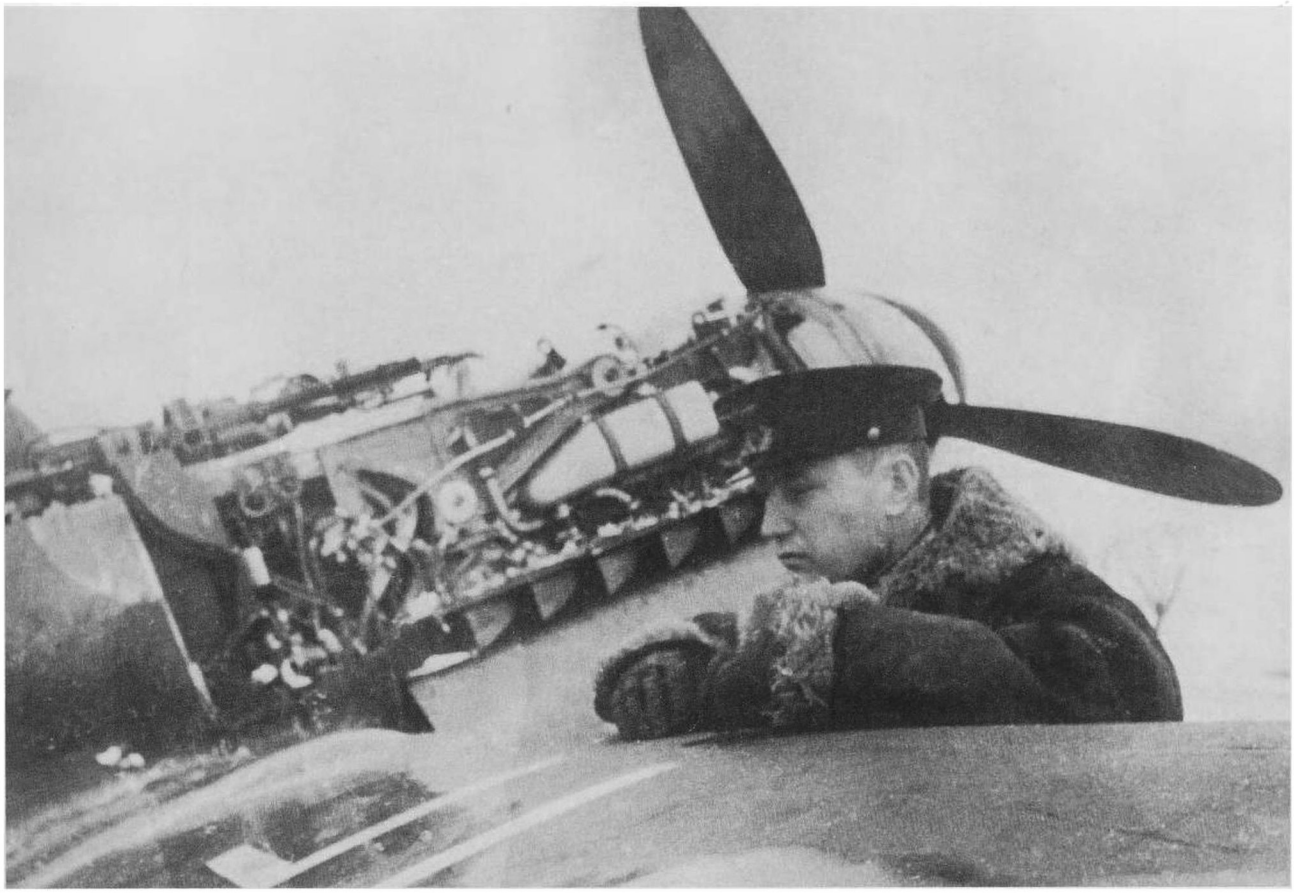
An interesting incident occurred in the early summer of 1943 following the appearance of high-flying reconnaissance aircraft over Moscow. Soviet sources do not agree on the type, but it can be assumed that it was a Ju 86 P. The inability of existing Soviet fighters to intercept the German aircraft prompted Soviet officials to call for the development of high-altitude fighters.

The result of this rushed development program was the Yak 9PD. It was powered by an M-105 PD engine equipped with a high-altitude supercharger and was designed by V.A. Dollejal. The aircraft's construction was extremely light to allow it to reach altitudes of 13,000 to 14,000 meters. Armament consisted of a single light machine-gun.

Only a few of these machines appeared in the skies over Moscow, but that was enough to cause the Germans to cease their flights.

In May 1945 the German forces on the Eastern Front surrendered. In spite of persistent attacks by Soviet and Allied air forces, the *Luftwaffe* remained a potent force until the last days of the war.

After the war many German designers were relocated to the Soviet Union, allowing several projects which originated in Hitler's *Luftwaffe* to be brought to fruition there after the war.



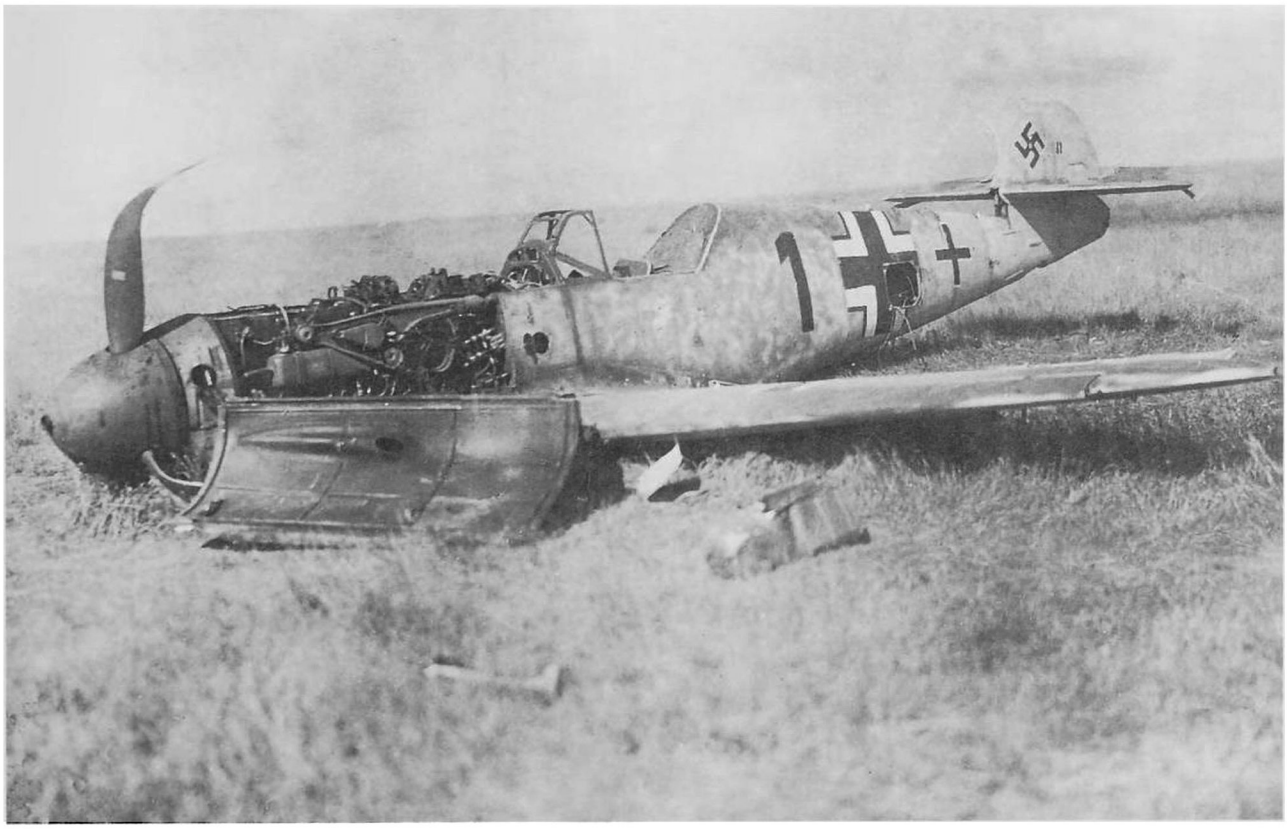
The well-known fighter pilot A.I. Pokryshkin examines a captured Bf 109 F. By war's end Pokryshkin was the number two Soviet fighter ace behind I.N. Kozhedub with 59 kills.

A Fw 189 shot down by A.I. Pokryshkin. He is seen here at the wheel of a Willys Jeep supplied by the Americans under the Lend-Lease program.

Remains of German aircraft on a Soviet airfield. Identifiable are the tail sections of several Bf 110s. The one in the right foreground bears the *Werknummer* 5120. Behind it is part of the fuselage of a Ju 86 bearing the code BO+??.

Victor and vanquished. A Bf 109 on its belly next to an intact Yak-9 of a Soviet fighter unit.

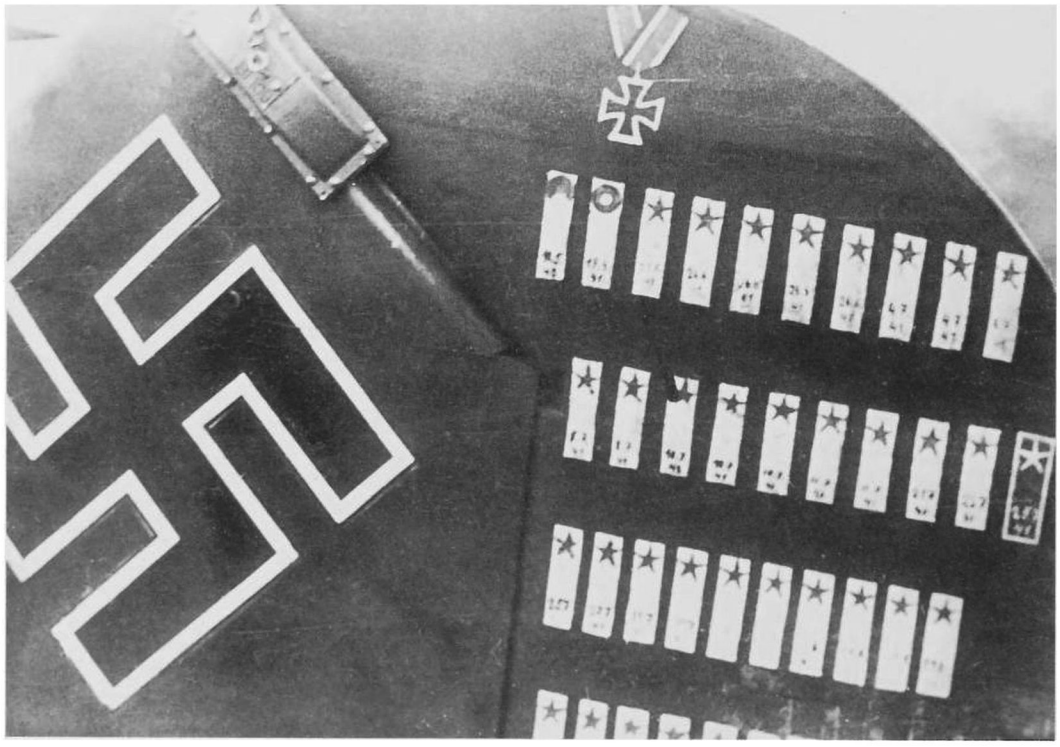
When improved versions of the Bf 109 appeared at the front, it was a matter of some urgency for the Soviets to obtain an example of the new fighter for evaluation. This Bf 109, *Werknummer* 42006, was found abandoned on the Leningrad front.



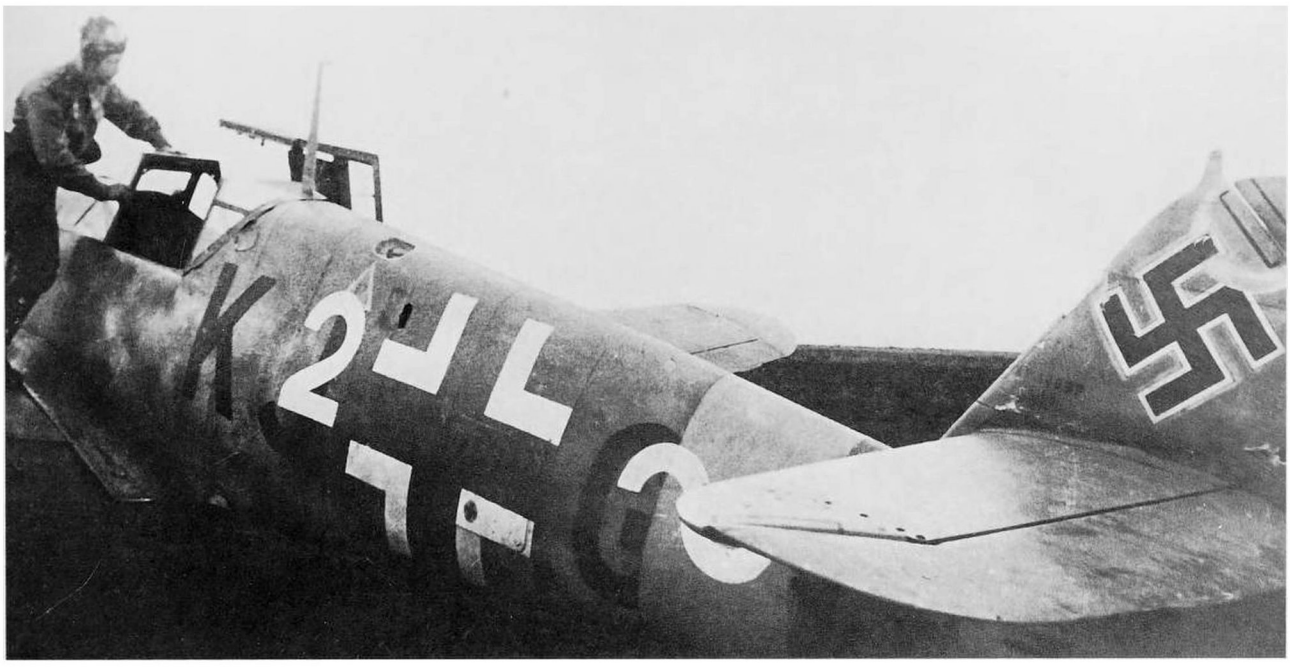
This Bf 109 F crash-landed somewhere in the vastness of the Soviet Union. A comparison of the gray tones suggests that it was "Red 1". The cross marking on the yellow fuselage band is interesting. Two victory bars appear on the rudder.

This Bf 109 was found in a German scrap yard in the Soviet Union. Unfortunately the aircraft's *Werknummer* is obscured by the camouflage netting.

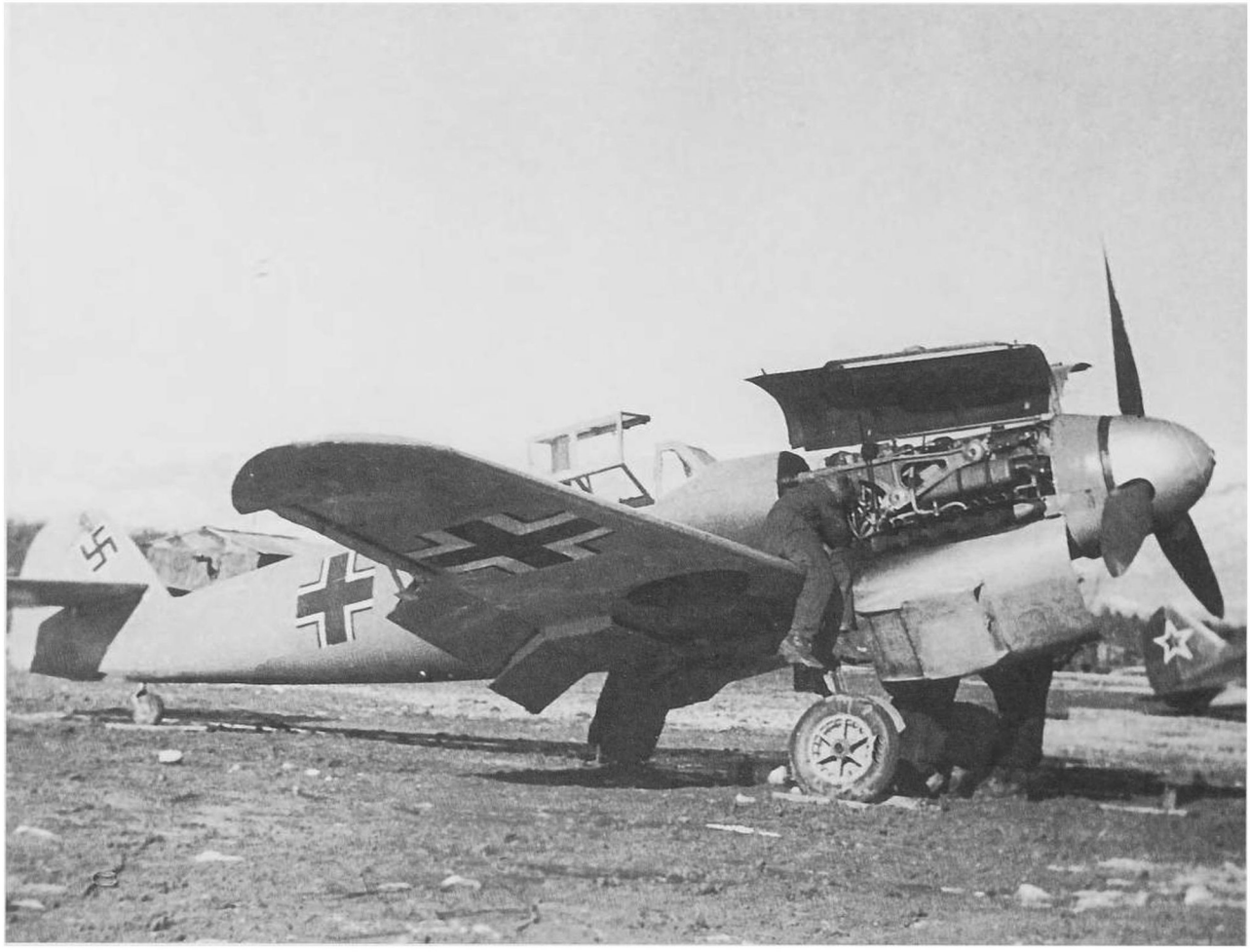
Soviet troops examine a Bf 109 which crash-landed on a frozen lake.



The fin and rudder of the aircraft of an unidentified holder of the Knight's Cross. At least 39 victory bars may be seen, of which 37 indicate victories on the Eastern Front. Some of the dates on the victory bars are legible, which may make it possible to identify the pilot. Note the gust lock bearing the inscription "Bf 109."

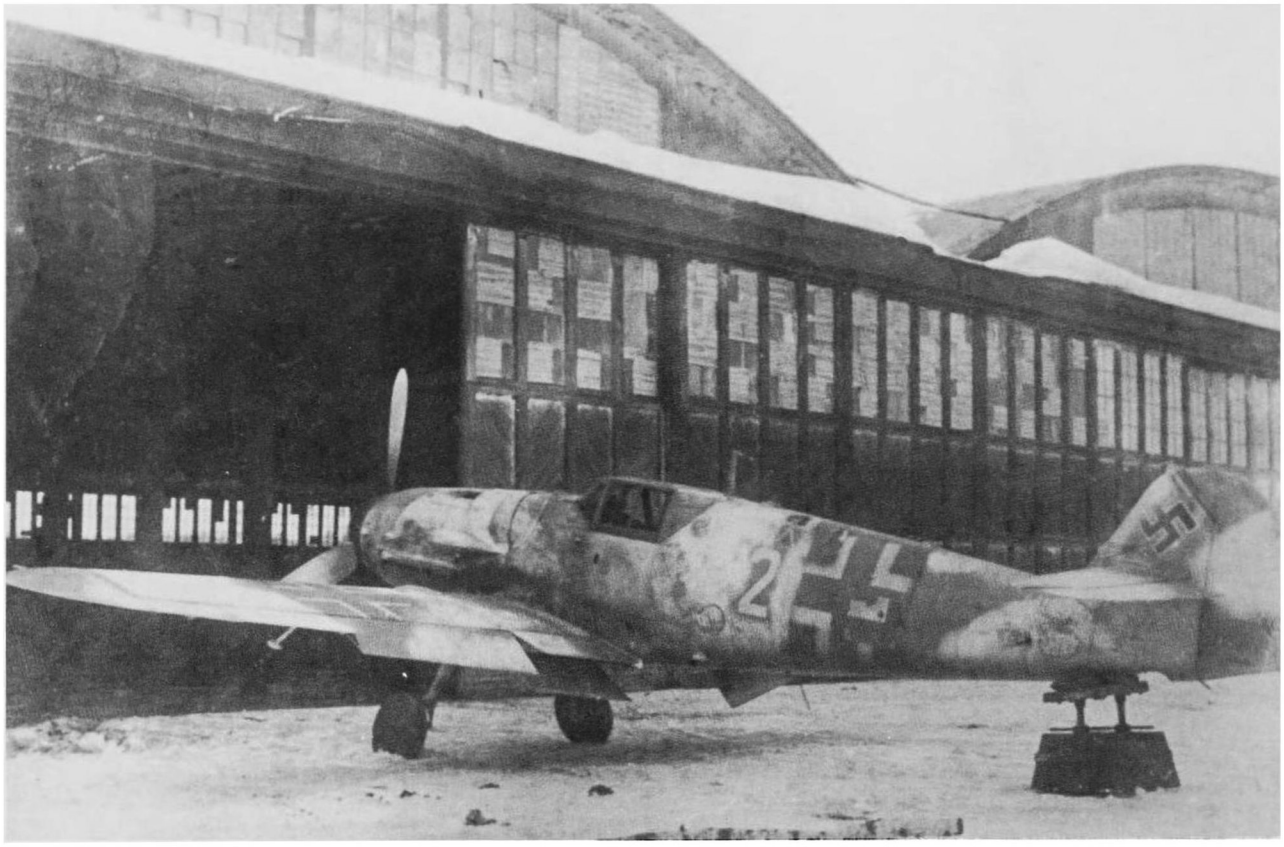


This well-known series of propaganda photographs depicts the Soviet fighter ace Tarasov climbing from the cockpit of a captured Bf 109 and reporting to a marshal of the Soviet Army.
The aircraft in the photos is one flown by Erich Hartmann, although he was not the pilot on the day it was lost.
The pilot of the aircraft was forced down by Soviet fighters, however just prior to landing he retracted the undercarriage resulting in considerable damage to the machine, some of which is evident in the photo at the bottom of the page.



The Soviet air forces had their own unit of captured aircraft, similar to the German "Zirkus Rosarius", which traveled from unit to unit for the purpose of familiarizing pilots with the characteristics of the Bf 109.
Here Soviet ground personnel prepare the aircraft for flight. The German insignia are obviously not the originals and were applied after the aircraft's capture.

Excellent view of the antenna attachment point on the vertical fin. In the bottom photo a mechanic removes the gust lock which held the rudder in place when the aircraft was on the ground. The swastika on the aircraft's fin was obviously painted by hand.

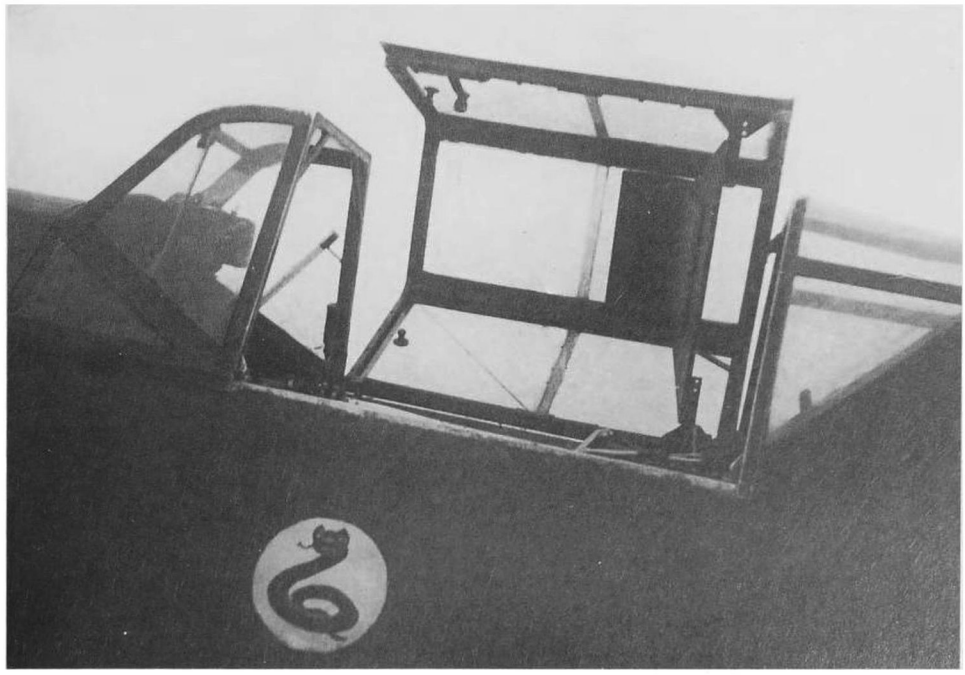


Bf 109 G at the 1st Repair Facility in Leningrad in 1943-44. The aircraft wears a broad yellow fuselage band with the cross superimposed, as well as a crude winter camouflage finish. After the tailwheel had been repaired, the aircraft was flight tested by the Soviets.

This photo of a Soviet pilot inspecting a Bf 109 was taken in the Murmansk area in 1942. For a long time the *Staffel* emblem remained a mystery, however the aircraft has been identified as that of Oblt. Franz Menzel, *Staffelkapitän* of 5./JG 5 (Polar Bear *Staffel*). How the aircraft fell into Soviet hands is still not known.

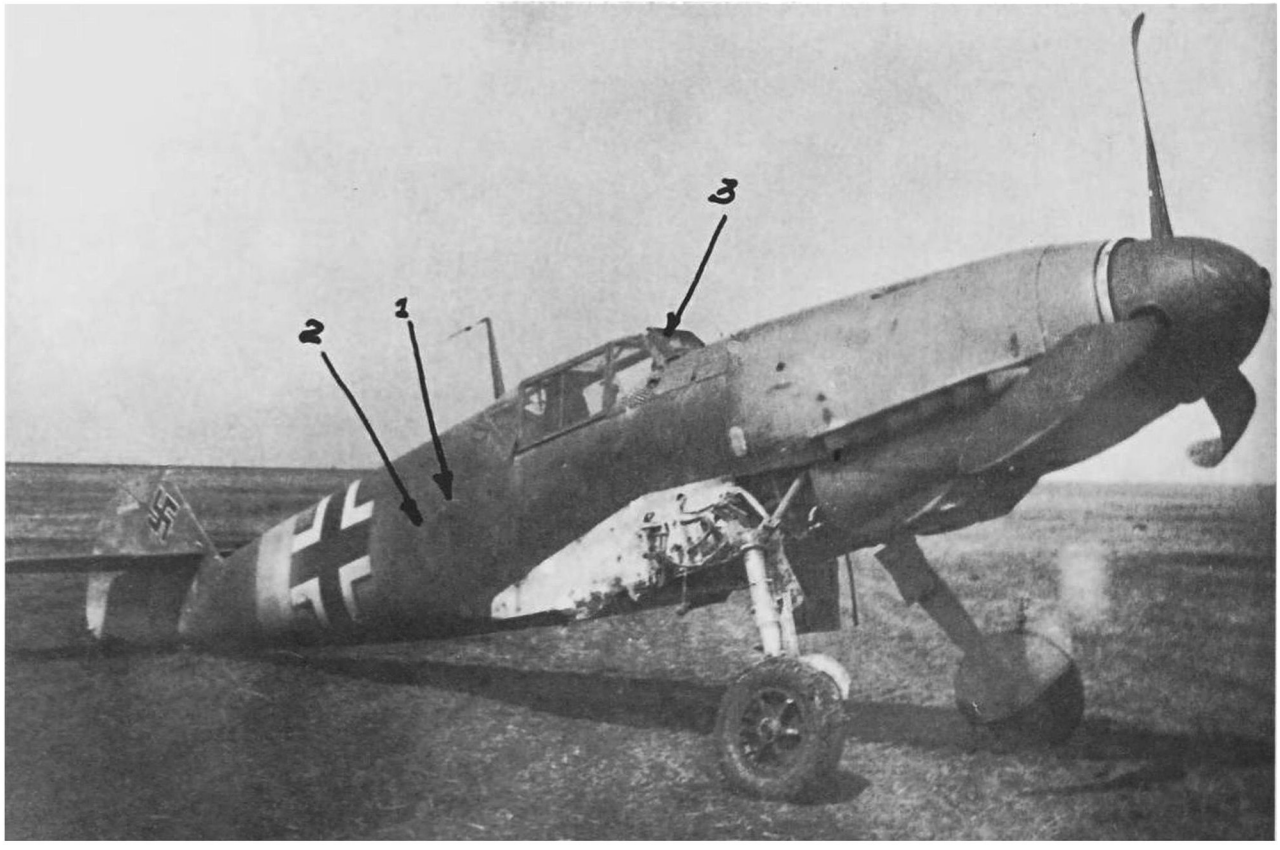
As explained in the preceding text, the Soviet aviation industry gained experience with the Bf 109 before the war. This sequence of photos depicts the Bf 109 E which was purchased by the Soviets and tested extensively.

Rear view of the Bf 109 E at the Soviet test center.

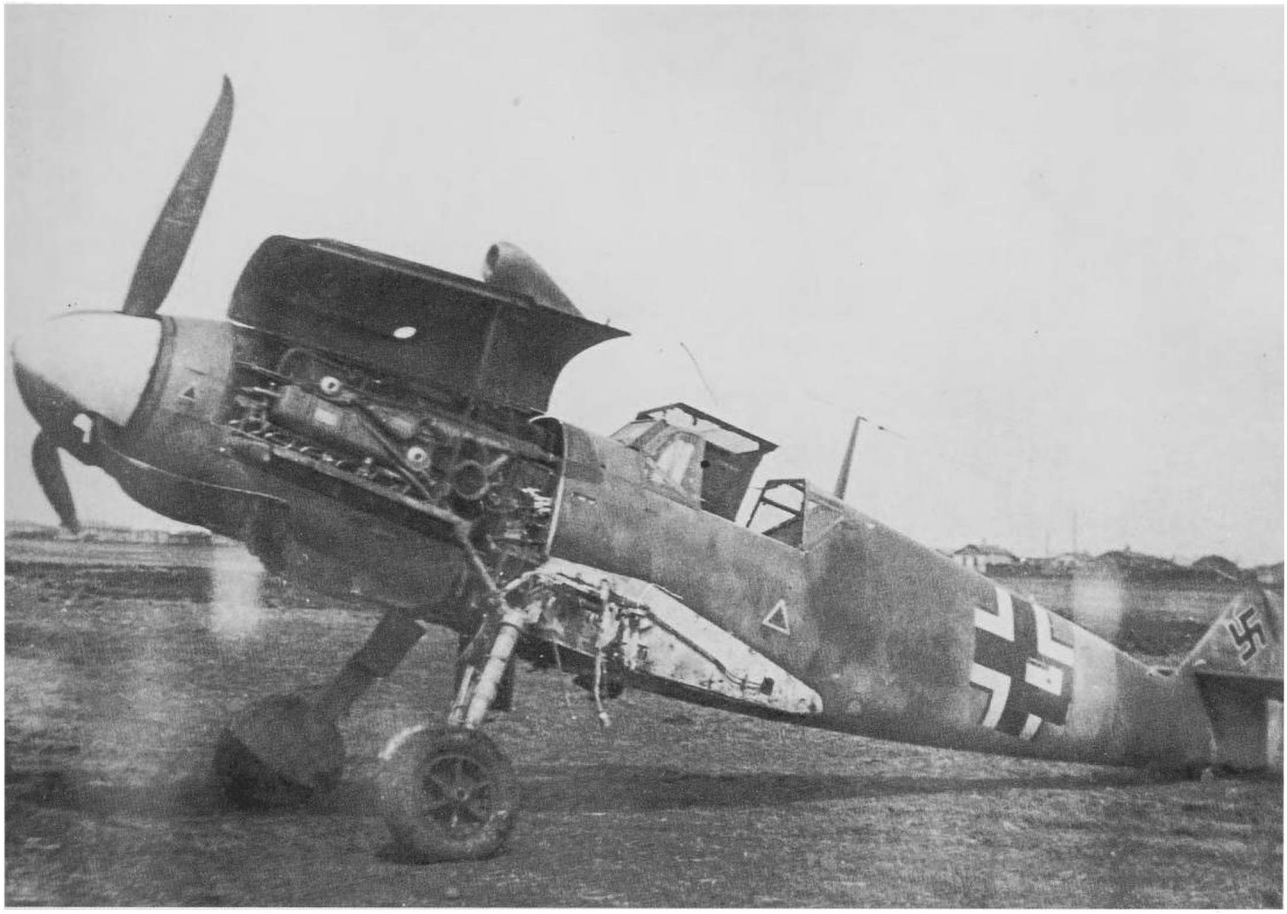


Bf 109 E with cockpit hood open. The snake emblem beneath the cockpit is unidentified, however it is likely a Soviet unit emblem.

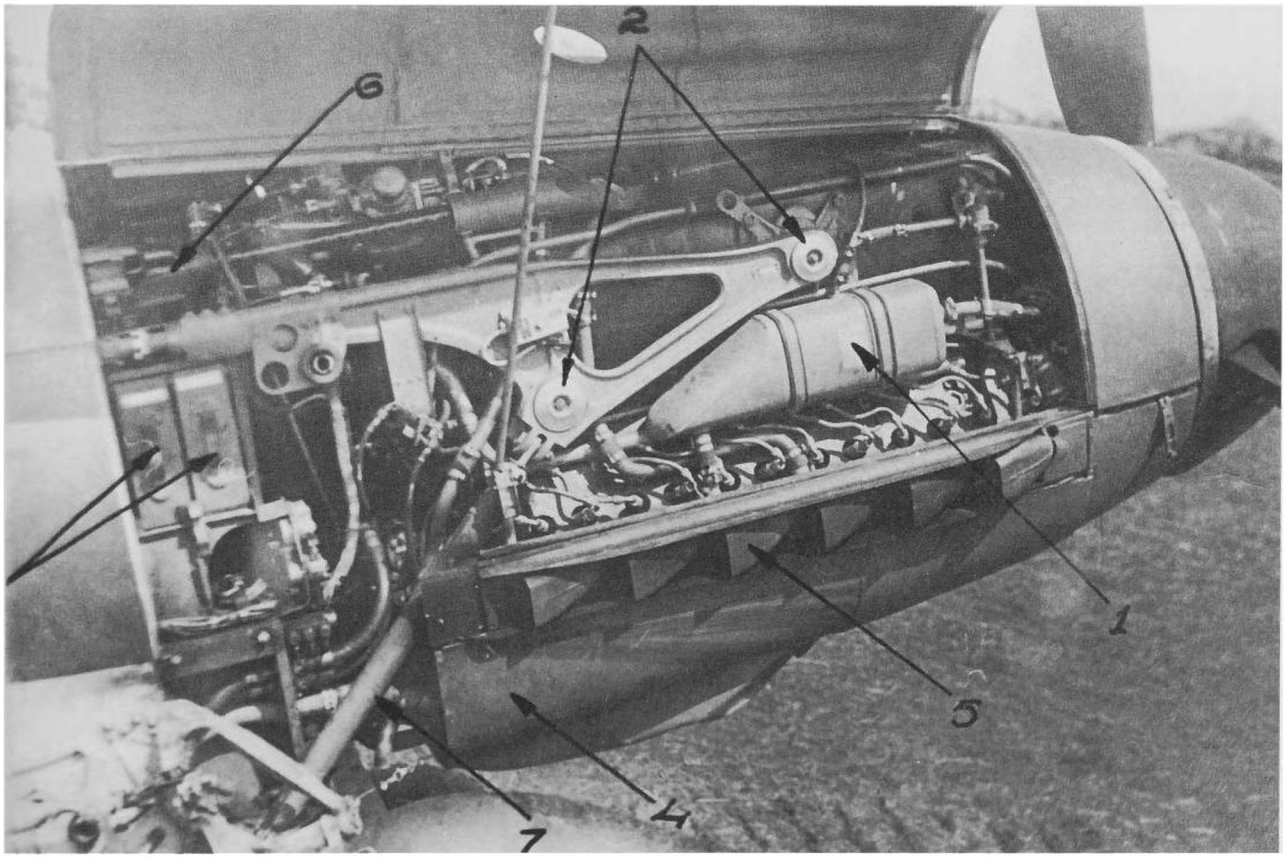
This Bf 109 E purchased before the war was used for spin tests. For safety reasons the aircraft was fitted with a parachute housed in a special structure attached to the rear of the fuselage and operated from the cockpit. The purpose of the parachute was to stabilize the aircraft in the event of loss of control in a spin. It is not known if the system was ever used, however the Bf 109 was acknowledged to have excellent spin characteristics.

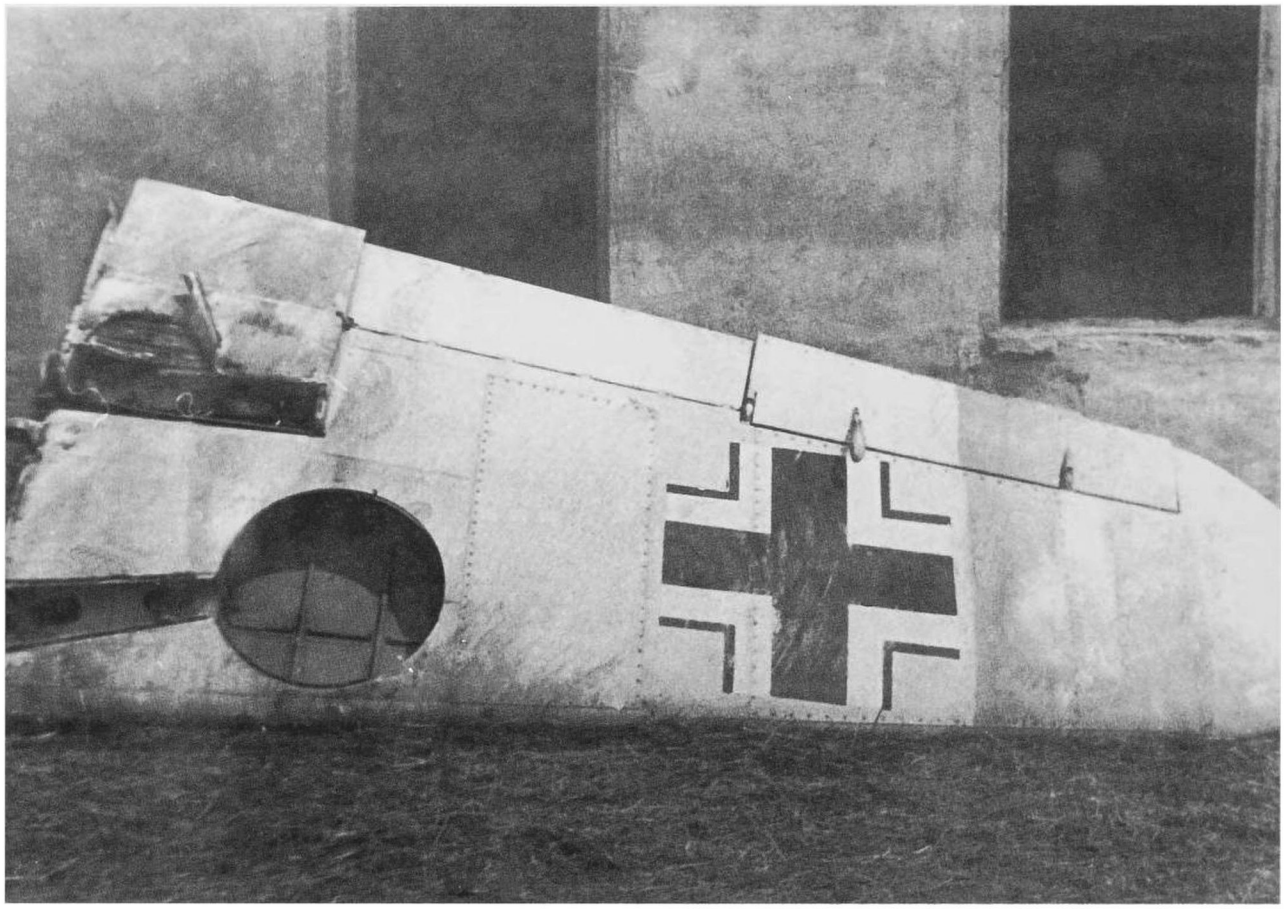


The following series of photographs was taken at a Soviet test center and was intended to identify the salient points of the Bf 109 F. The bent propeller blades suggest that the aircraft was captured after a belly landing.



All of the aircraft's tactical markings have been overpainted, making it impossible to identify the unit to which it belonged. The aircraft's *Werknummer* has also been overpainted.
These close-up photographs will be of value to the modeler. Of particular interest in the photo above is the exposed wing root, revealing the maze of lines leading to the wing.
The photo below provides a detailed view of the engine and accessories.





A photo of the wing of the Bf 109 F.

A Bf 109 G-2 which was captured and test flown by the Soviets. No details of this photo are known. Note the excellent condition of the aircraft. The number 2 on the rudder suggests that this is the same aircraft depicted in the following photos.

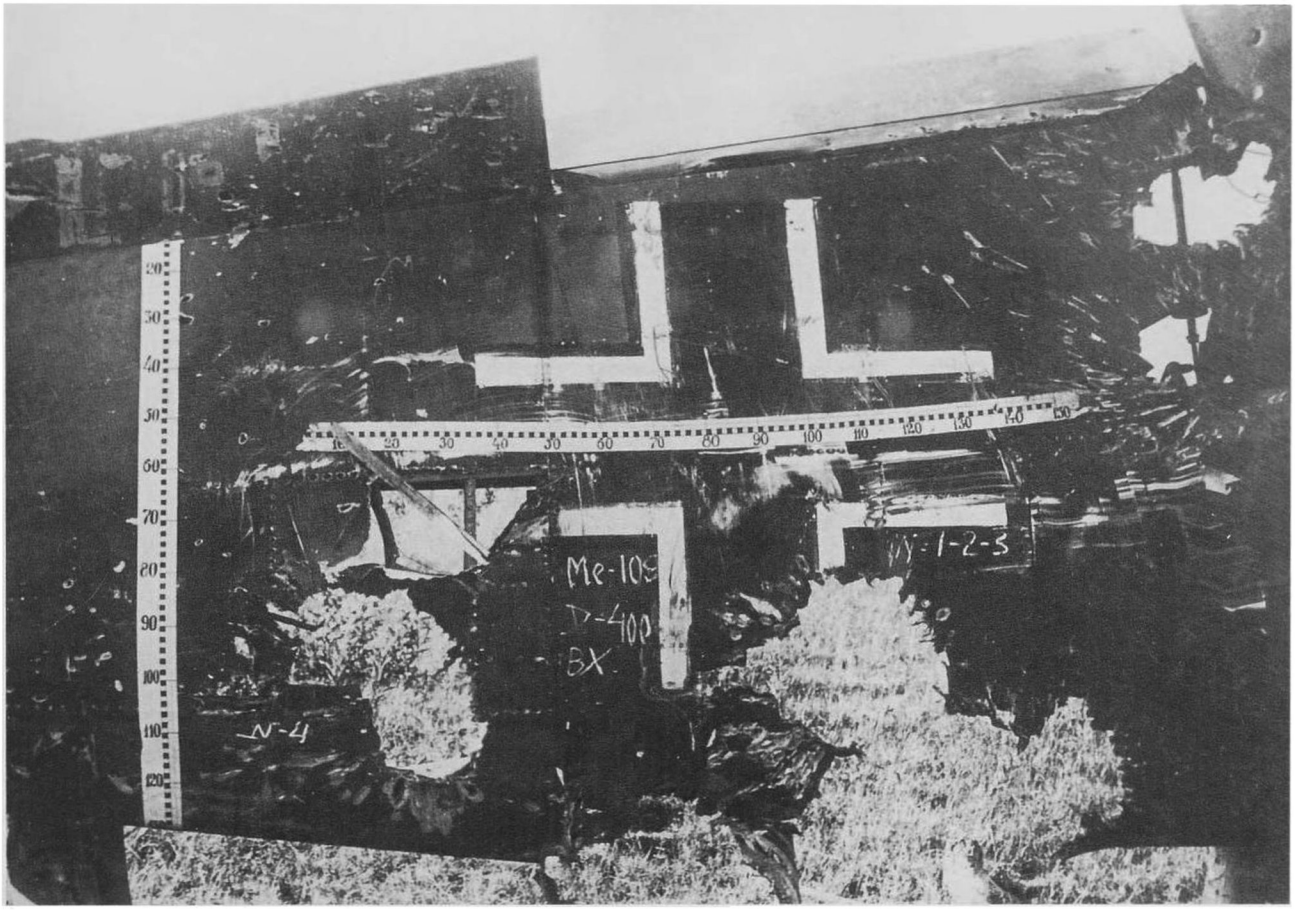
This Bf 109 G-2/R6 was captured in the Proleika region near Stalingrad. The photo was taken on 6 January 1943 and depicts the aircraft still in German winter camouflage. Red stars have already been applied to the machine. The number 2 on the rudder suggests that it is the same aircraft as in the previous photos.

The initial test runs of the engine revealed that the machine was in excellent condition. Note that the undercarriage fairings have been removed. This was probably done by the Germans because of snow buildup on their airfields. The absence of undercarriage fairings reveals the torque links and brake lines.

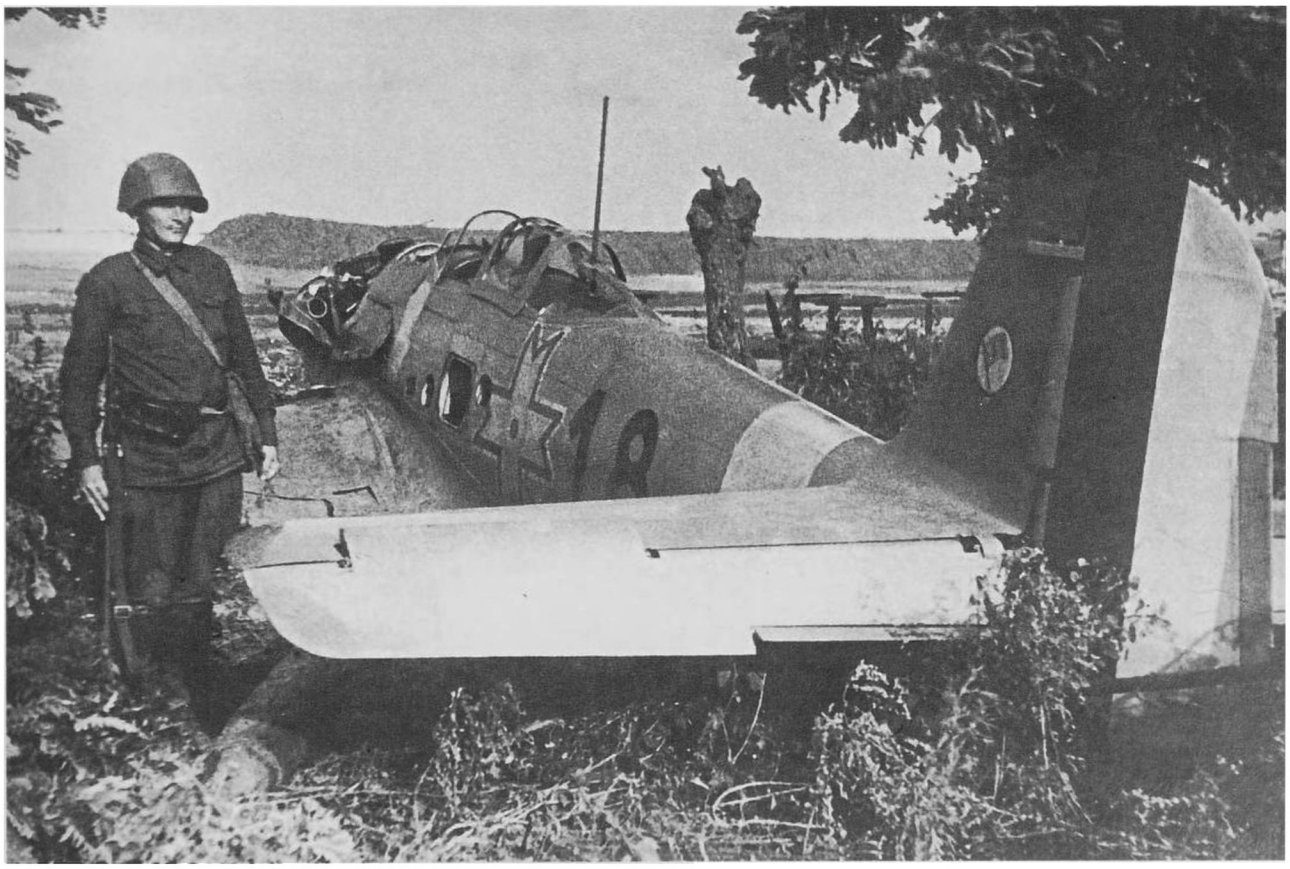
To add to the confusion, the same machine suddenly reappeared in its original German markings. The swastika was obviously not the original, however, and the winter finish is also absent. The only identifying feature is the number 2 on the rudder. Interestingly, the undercarriage fairings have been reinstalled. It has yet to be determined whether the "2" was a German or Soviet marking.

At least one other Bf 109 G-2/R6 was tested by the NII VVS test center in 1943. As indicated by the *Gruppe* emblem on the engine cowling, the machine was previously operated by II./JG 3 *Udet*. It was captured in the Stalingrad area.

Three more photos of the Bf 109 G-2/R6 of JG 3 *Udet*. The underwing cannon were removed during the course of testing.



Firing tests on the wing of a Bf 109. The marking "Me 109 / D-400 /BX" was applied in chalk.



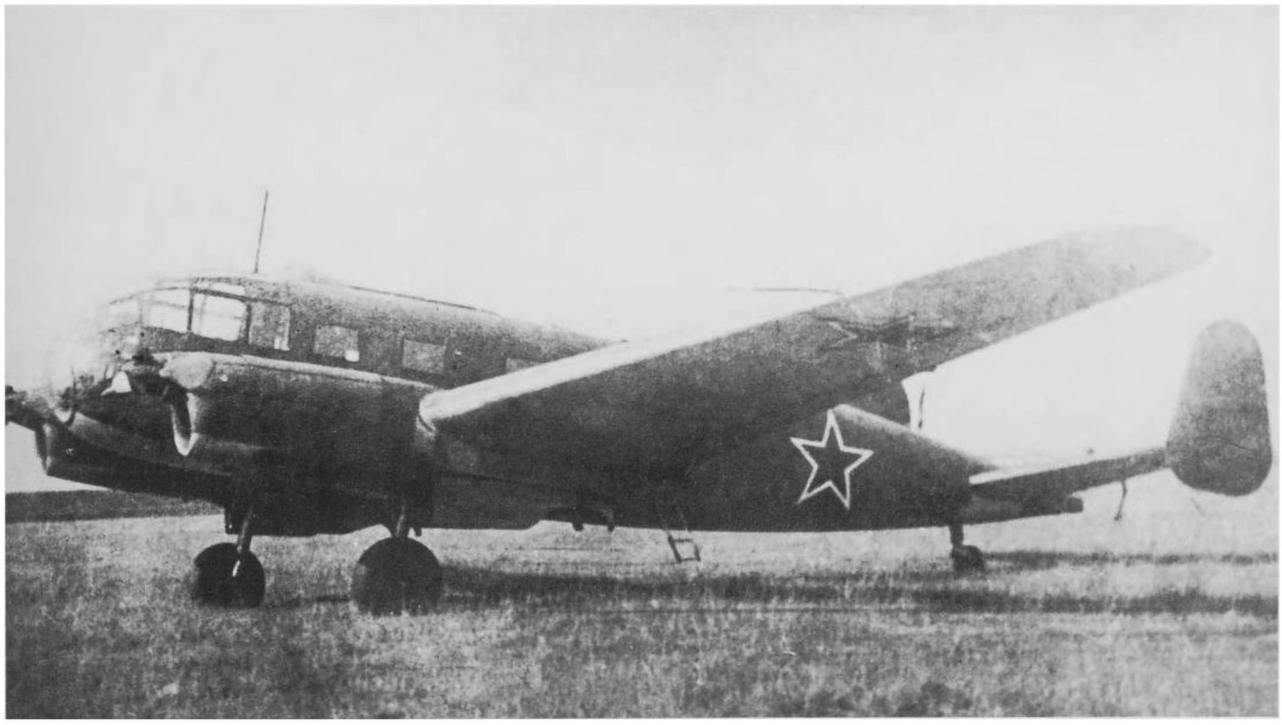
A Soviet sentry stands guard over a shot-down Heinkel He 112. The aircraft wears Romanian insignia and was part of the Romanian contingent which fought with the Germans at the start of the campaign against Russia. The degree of damage suggests that the aircraft was not repaired, especially as the Soviets had experience with the He 100 and the He 112 was considered obsolete.

Numerous examples of the Me 410—here an A-3—fell into Soviet hands. The starboard engine of this machine has been heavily damaged.

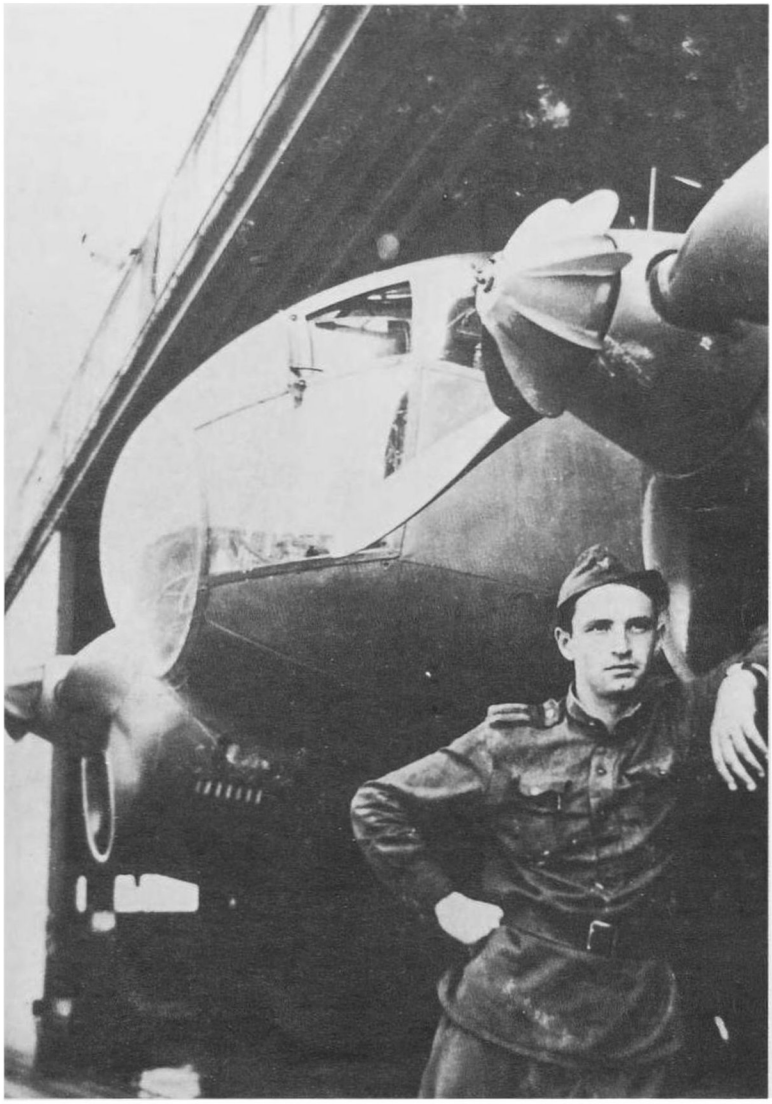
Soviet troops pose on a captured Me 410 for a souvenir photograph. The machine bears the *Werknummer* 420437.

This Me 410 B, *Werknummer* 130379, was tested extensively at the NII VVS test center. The aircraft retained its original finish but was provided with Soviet insignia.

The Siebel Si 204 D was much prized by the Soviet air forces on account of its reliability and versatility. The aircraft depicted here was flown by Vasily Stalin, son of the dictator Josef Stalin. The photo was taken in 1945, probably during a visit to Czechoslovakia.

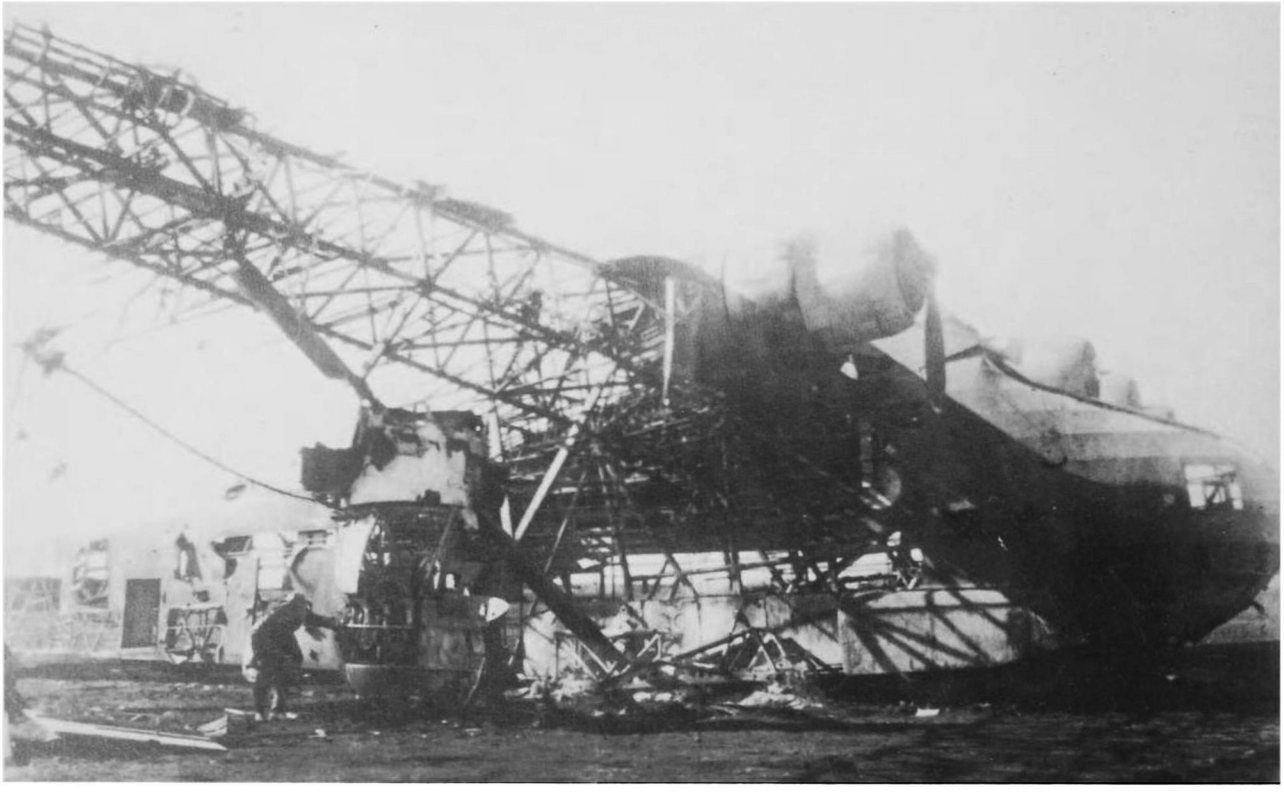


This photo of a Siebel Si 204 D (C-3, a Czech version built under license) was taken in the late forties. The aircraft was in regular Soviet service. Siebels served with the Soviet air forces well into the fifties. This photo was taken at the end of 1945 at the N II GVF civilian test center.



This souvenir photo was also taken in front of pilot Stalin's Si 204 D in Czechoslovakia.

Although the wreck of this Messerschmitt Me 323 Gigant has piqued the interest of a Soviet soldier, the level of damage made it impossible to acquire any useful information about the aircraft's design and systems.



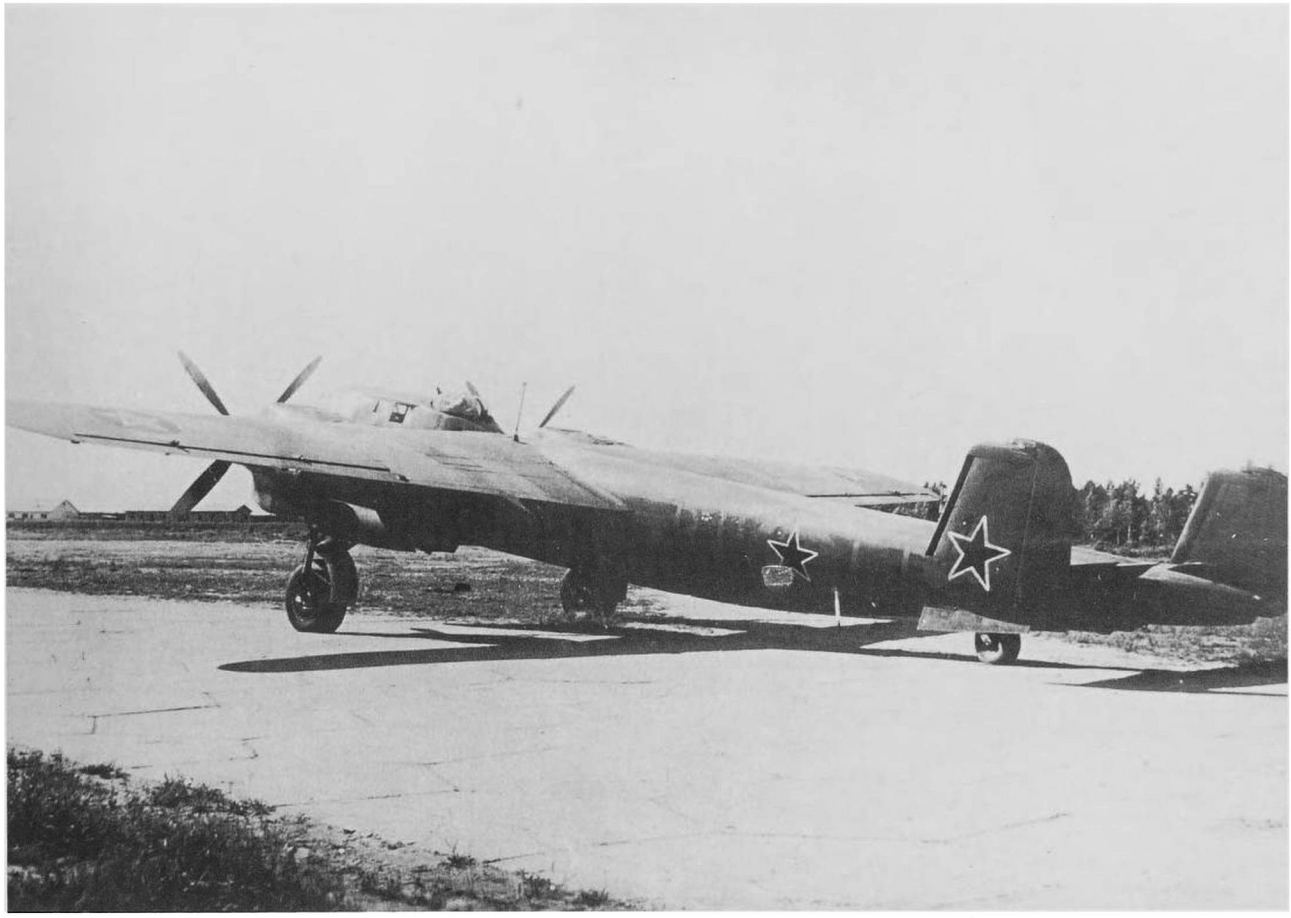
This Junkers Ju 87 D-1 was test flown at the NII VVS test center in 1943. Note the bomb on the ETC rack beneath the fuselage. Other bombs lie in the background.

The same aircraft with a crudely retouched markings for propaganda purposes.

This Ju 87 bearing the code 6G+?? (II./StG. 1) remained in front of the Imperial Palace in Leningrad as a war memorial until 1947.

Large numbers of aircraft in service on the Eastern Front, combined with a high rate of loss, meant that it was easy for the Soviets to obtain sufficient spare parts to keep captured Stukas flying.
This photo depicts a downed Stuka somewhere in the Soviet Union. The pilot apparently jettisoned the undercarriage prior to making a forced landing.

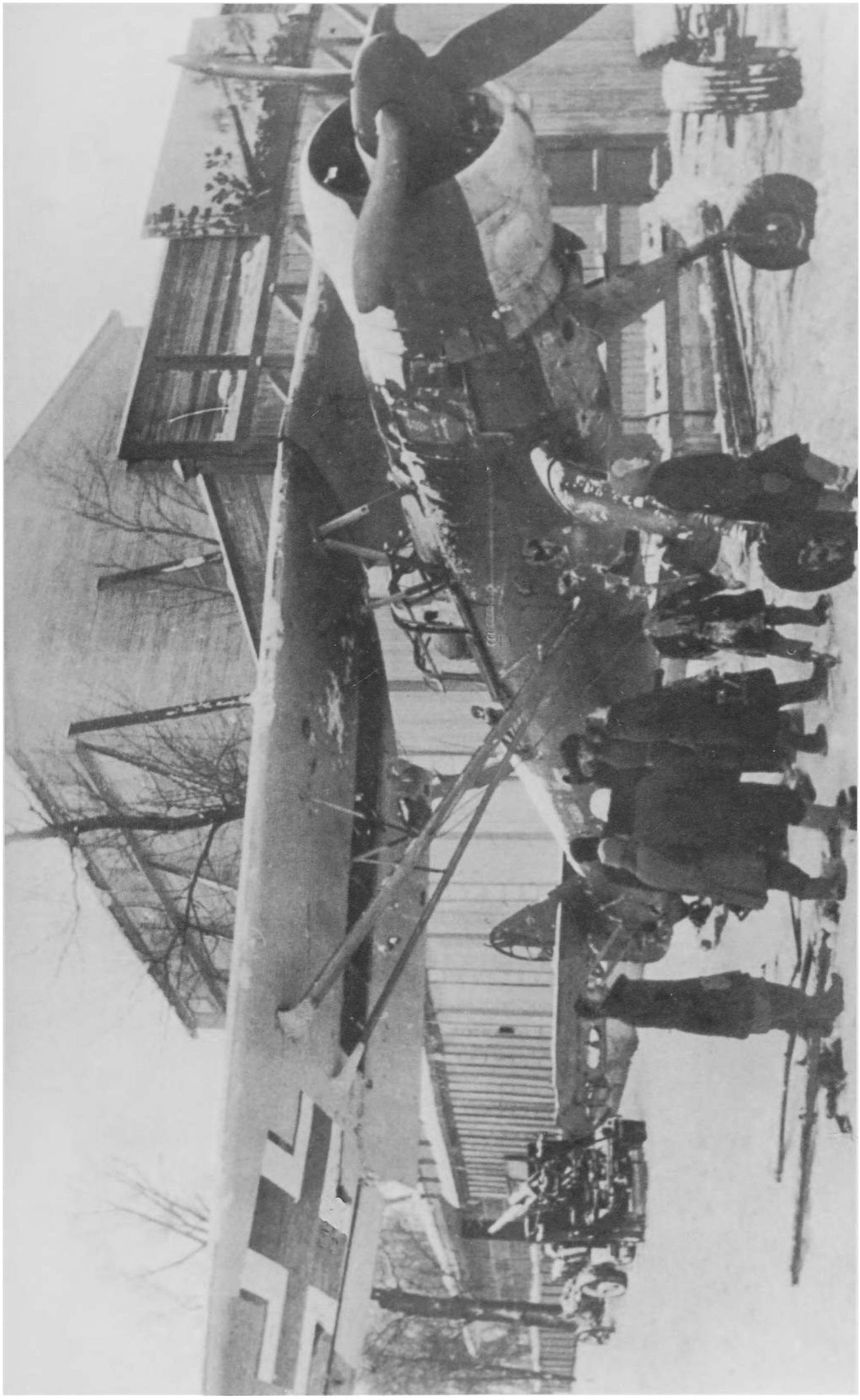
Stukas were very common in German aircraft dumps. Here Soviet troops examine a Ju 87 D-3 of the Romanian air force. This photo was taken on Khersonyes airfield near Sevastopol in 1944. The aircraft wears the marking "5a" on its rudder and the yellow fuselage band used on the Eastern Front.



Little is known about the Dornier Do 217 Ms tested at the NII VVS test center. In the photo above the cross on top of the port wing has been overpainted and a red star applied. The German cross on the fuselage is still just visible.

This Henschel Hs 126 was shot down by pilot Seleznev over the Murmashi airfield in the Murmansk region on 9 February 1942. The aircraft's identity and codes are a mystery. It has been suggested that the code is V7+1K, which would indicate that the machine belonged to 1.(H)32. The *Staffel* emblem, which is just visible, has yet to be identified.

This rather better photograph of the same aircraft confirms the suspicion that it was not finished in winter camouflage, but in fact had been stripped in an effort to increase maximum speed. The only remaining trace of camouflage paint appears in the are of the cockpit.

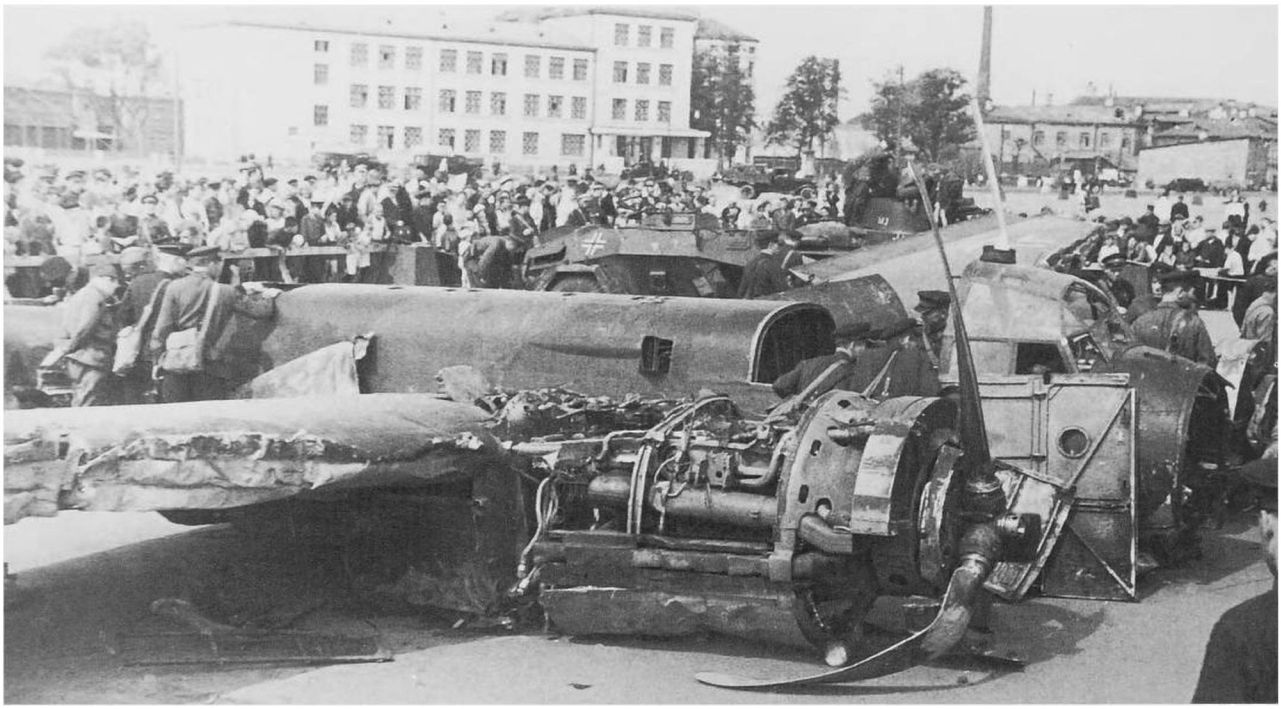


A damaged Hs 126 on display in the Central Park for Culture and Relaxation in Moscow, 1944-45. The aircraft wears no identifying markings apart from a *Staffel* emblem on the fuselage.

The Hs 126 depicted on the previous page, from a different angle. Note the absence of tactical markings. The scale provided by the people standing near the machine give some idea of what a large aircraft the Hs 126 was. The ultimate fate of this machine is not known.

The Soviets also came into possession of the Ju 88 in large numbers. Here we see a Ju 88 A-4 of KG 30 (Eagle *Geschwader*) which made a forced landing near Murmansk in 1944. The compartment in the upper rear fuselage is empty, suggesting that the crew may have tried to escape by water.

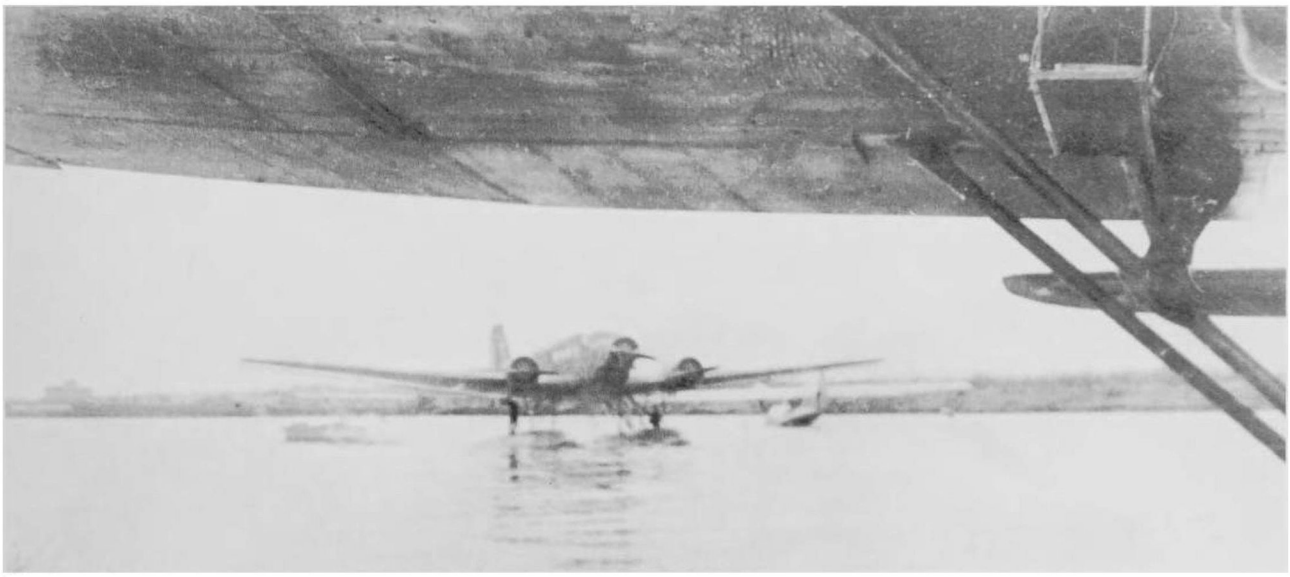
This Ju 88 A-4 was shot down over the Leningrad front in February 1944. The emblem on the fuselage nose is that of III./KG 77 (yellow outline).



This Ju 88 was shot down by Lieutenant Antonov on 7 August 1941 and was included in a display of captured German war materiel in Leningrad.

Junkers Ju 52/3m in civilian service in the Soviet Union. The photo was probably taken after the war.

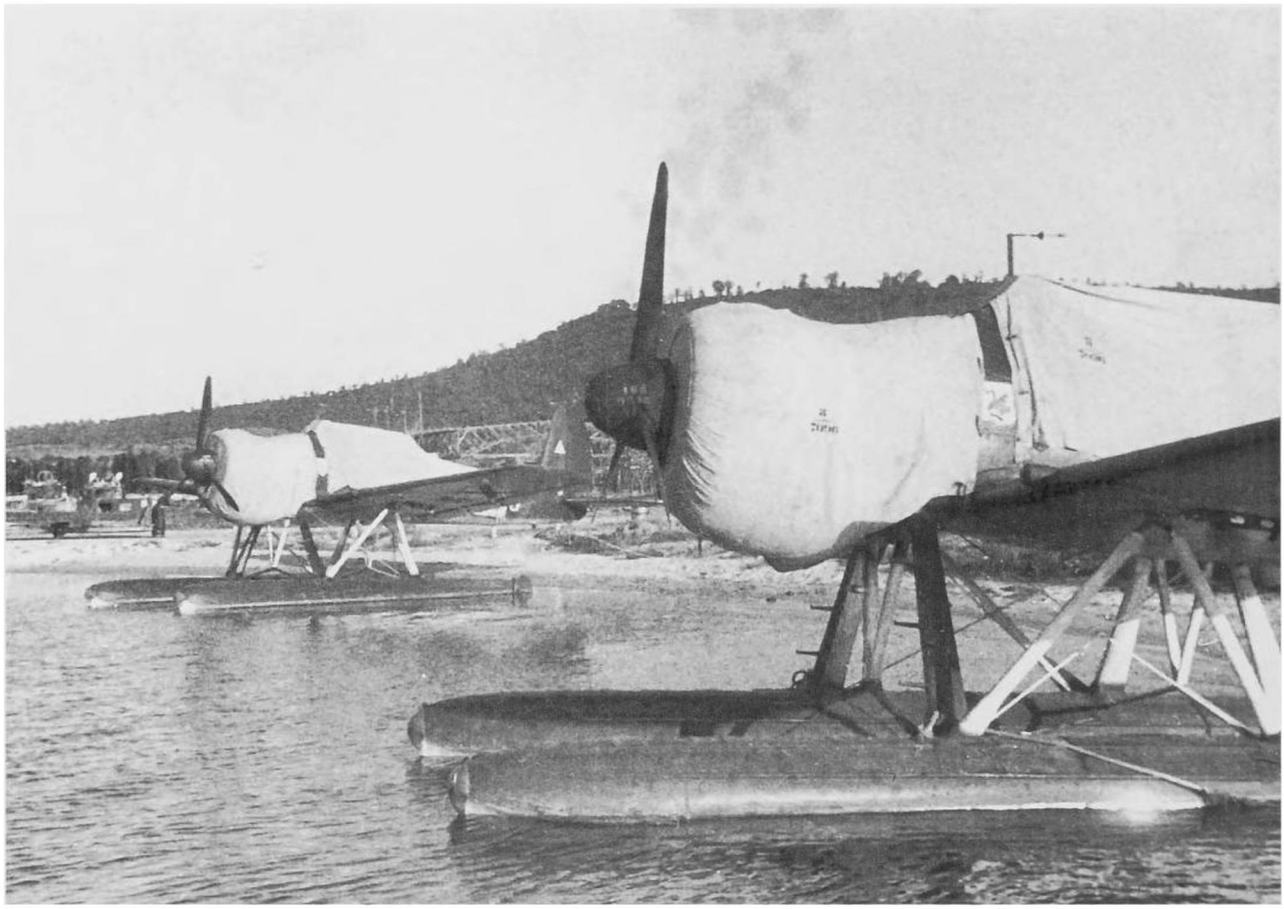
This well-known photograph of a Ju 52/3m was used for propaganda purposes. The official caption reads: "German aircraft set on fire by Soviet partisans behind the front." The smoke was in fact artificially produced. Had the aircraft in fact been burning, it is unlikely that a man would be lying calmly on the wing.



Junkers Ju 52/3m (See) during the Arctic expedition led by Avgewich in 1947. In the background is a PBY Catalina in Soviet service.

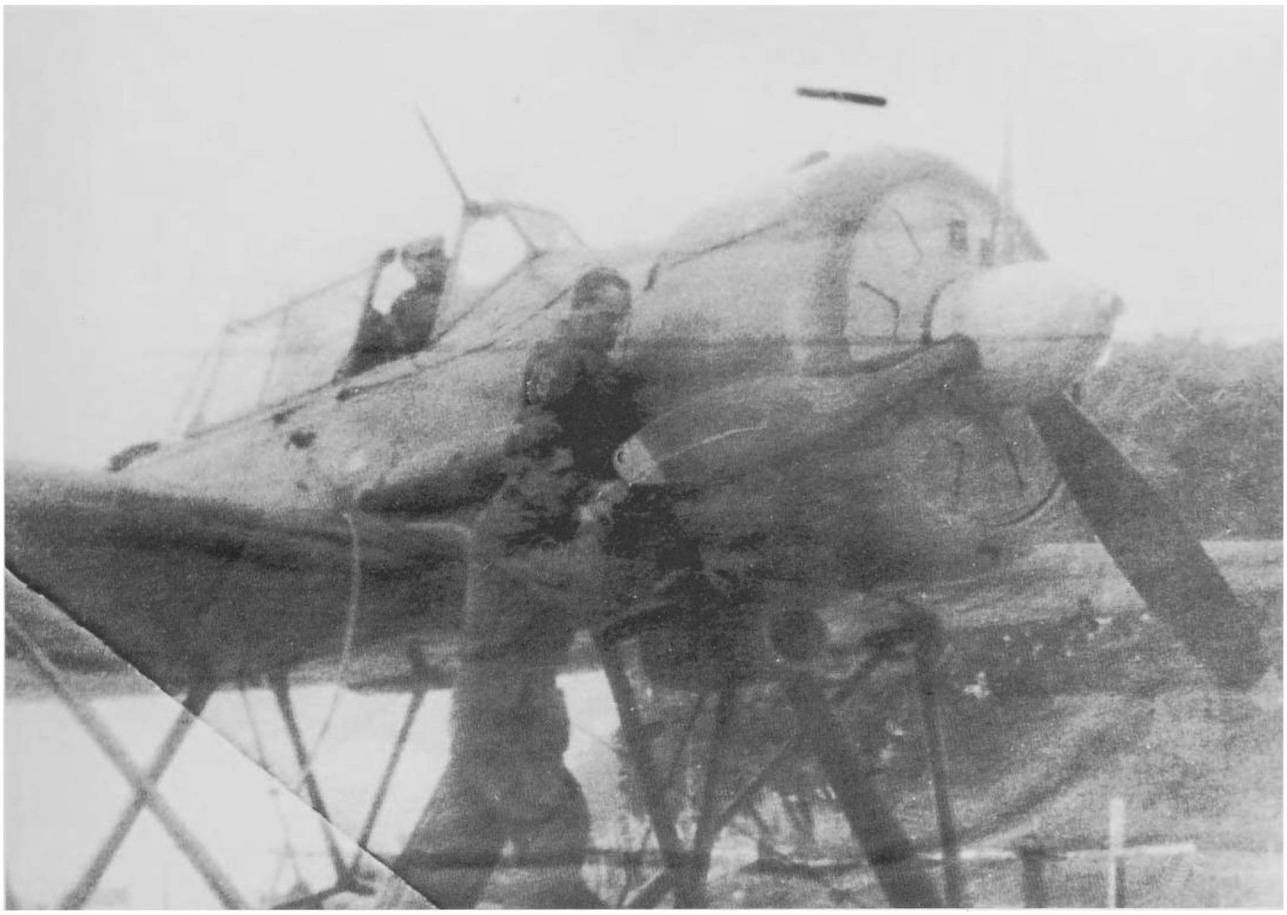
Countless wrecked Ju 52s were found by the Soviets following the failed German airlift to Stalingrad. Some were used as a source of spare parts for Ju 52s already in Soviet hands.

This Henschel Hs 129 B-1 was assigned to the NII VVS test center. Note that the aircraft's nose cap is missing.



Following the liberation of Bulgaria by Soviet forces, Arado Ar 196 floatplanes which had served in that nation's air force were transferred to the USSR for use by the Soviet air force. The serial number of the machine in the foreground is 3/7096. Bulgarian insignia is visible on the machine in the background. The photo was taken on Lake Chaika in 1944.

Arado Ar 196 in Soviet service in 1946.



This Arado Ar 196, which had formerly served with the *Luftwaffe*, was fitted with a Soviet-made radial engine to extend its service life. Arado Ar 196s flew in the Soviet Union until the early 1950s.

This photograph depicts an extremely rare machine, the Henschel Hs 130 A high-altitude reconnaissance aircraft, which was built in small numbers. Soviet troops captured the aircraft on a German airfield in 1945. The aircraft's subsequent fate is unknown, but the fact that it is without engines suggests that it was scrapped on the spot.

The Soviets also captured numbers of intact Fieseler Fi 156 C Storch utility aircraft. This machine still wears its full German code.

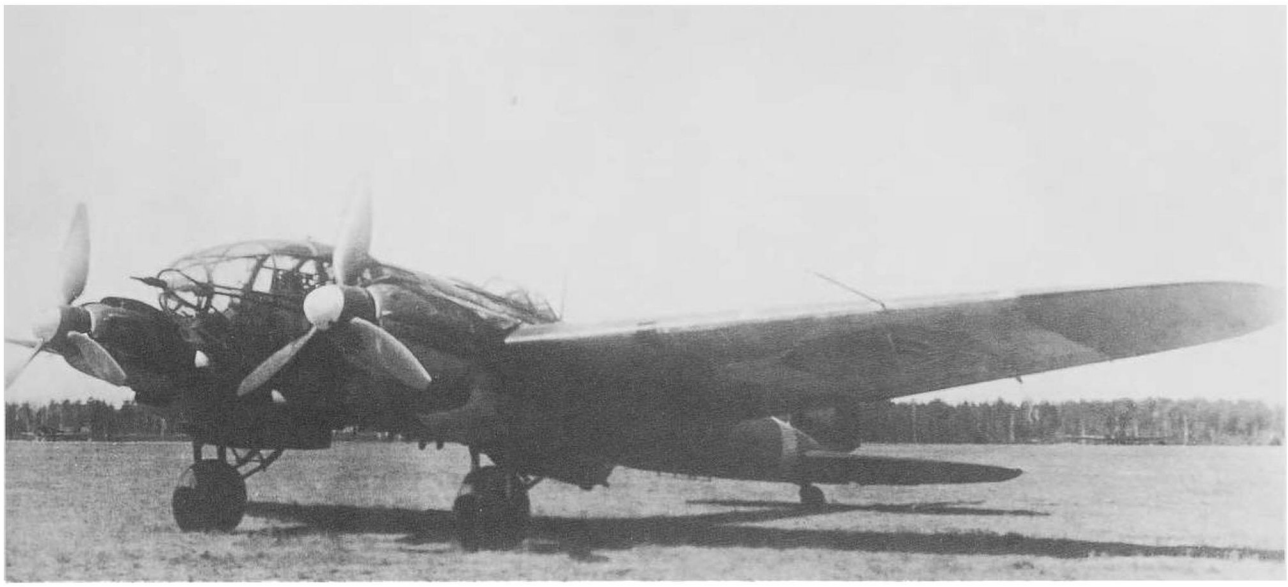
Another unidentified Storch captured by Russian forces. The machine wears Soviet markings and has been equipped with skis.

Although the Soviet air force had experience with the He 111 from the period of the Spanish Civil War, obtaining a more modern version of the bomber for evaluation was a high priority. The machine illustrated here belonged to KG 4 *General Wever*.

This He 111 H was captured at Khersonyes, Sevastopol in 1944. Code ??+ON.

Photograph of a train loaded with aircraft components, Sevastopol 1944. Captured aircraft were valuable sources of raw materials. In the foreground are parts of a He 111. Note the series of six antennas on the white fuselage cross. In the background is a disassembled Ju 52/3m.

This He 111 coded 1H+AK was captured near Kalinin on 11 December 1941. The aircraft's *Werknummer* (3773) is clearly visible on the vertical fin. Why this machine made a forced landing is not known. There is no sign of serious damage and it may be assumed that it was flown again. The aircraft code indicates that the aircraft served with KG 26 Lion *Geschwader*.

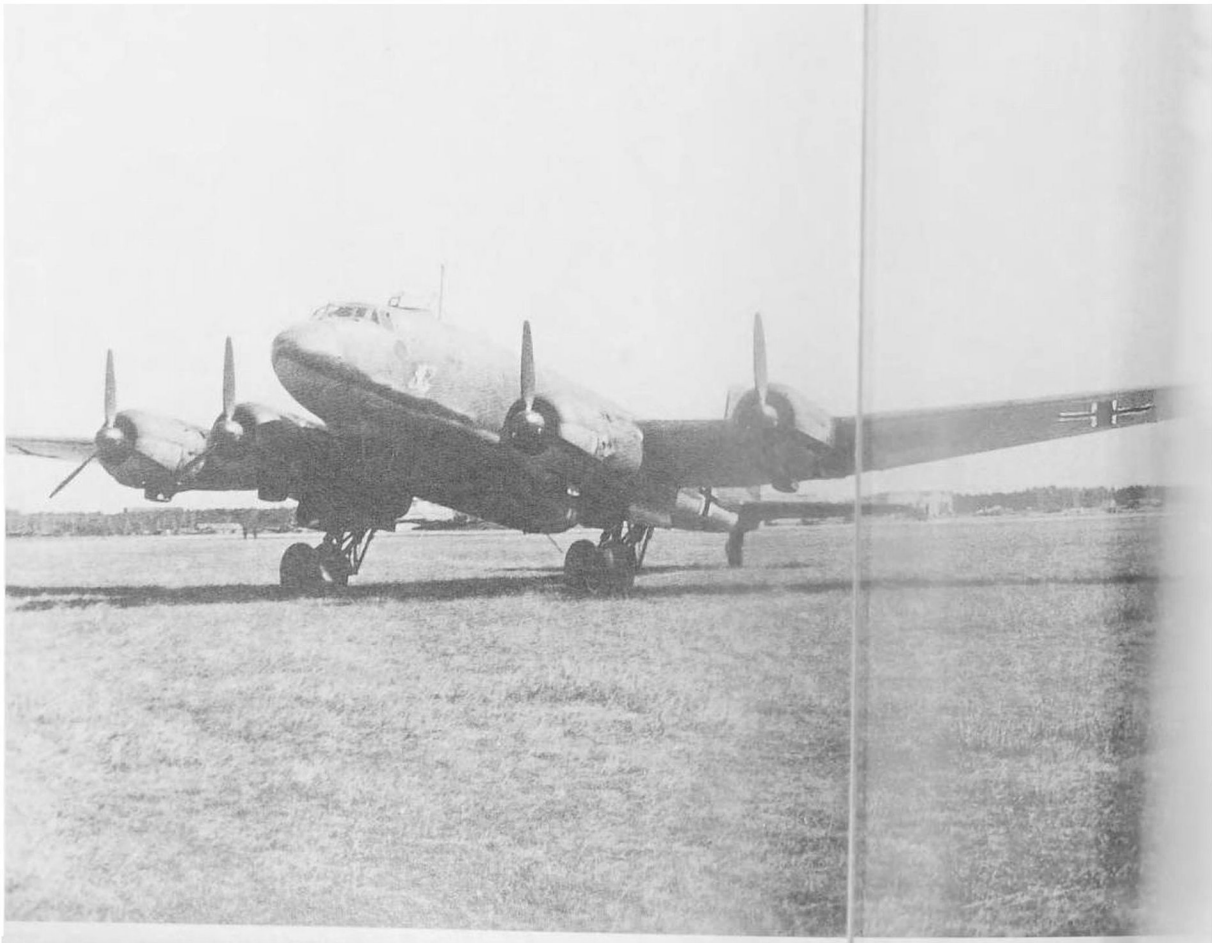


Front view. The aircraft's armament has been completely removed.

Photograph from the NII VVS archive of the same aircraft with numbers added to identify the various weapons positions. The faded paint scheme is clearly visible.

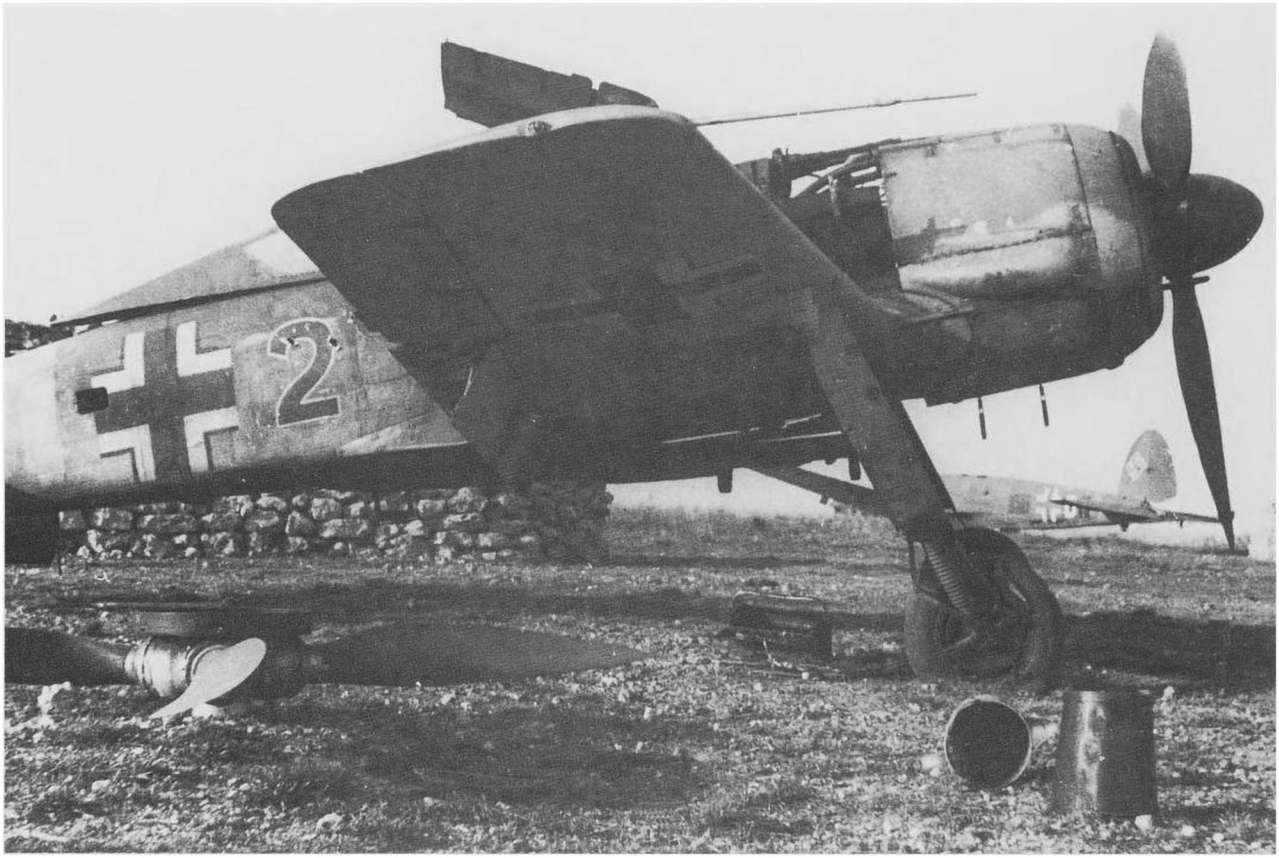
This He 111 H-11 was tested by the NII VVS test center in April and May 1943. The aircraft wears an interesting finish consisting of the original winter scheme with dark areas painted over the German markings. The Soviet stars are outlined in white. The aircraft's *Werknummer* (4983) is visible on the vertical fin.

This Fw 200 C-3/U2 was captured near Stalingrad in the winter of 1943. The emblem of KG 40 is clearly visible on the r the aircraft. All other markings have been painted over and replaced with Soviet star The aircraft was transferred to t VVS for flight testing.



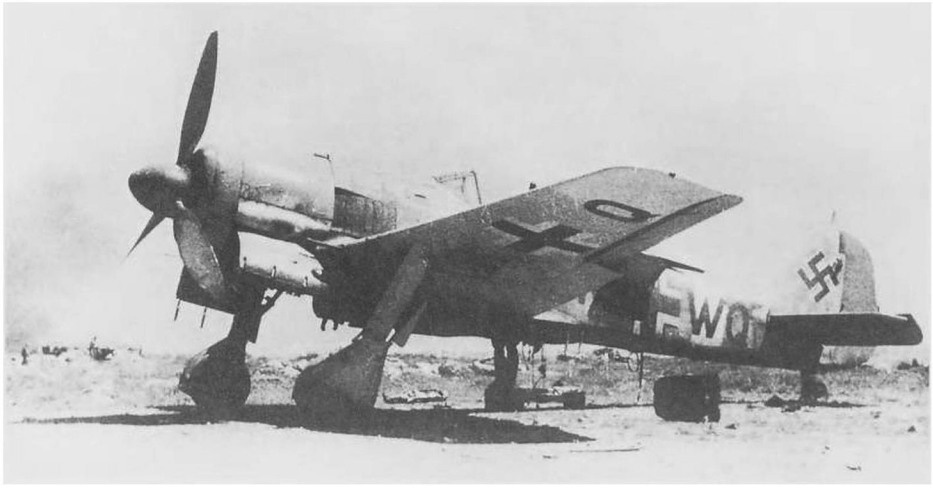
The same machine at the NII VVS test center. Once again the aircraft has been retouched with German insignia for pro purposes. Aircraft of this type were very popular in the Soviet Union and flew well into the 1950s, an indication of the r of the design.

Following the appearance of the Focke Wulf Fw 190 A on the front, the Soviets were naturally very interested in acquiring one of these new fighters. At first they had to be satisfied with crashed examples. The machine depicted here is a Fw 190 A-4/U1 bearing the code "19" and the Wehrmacht number 202432.

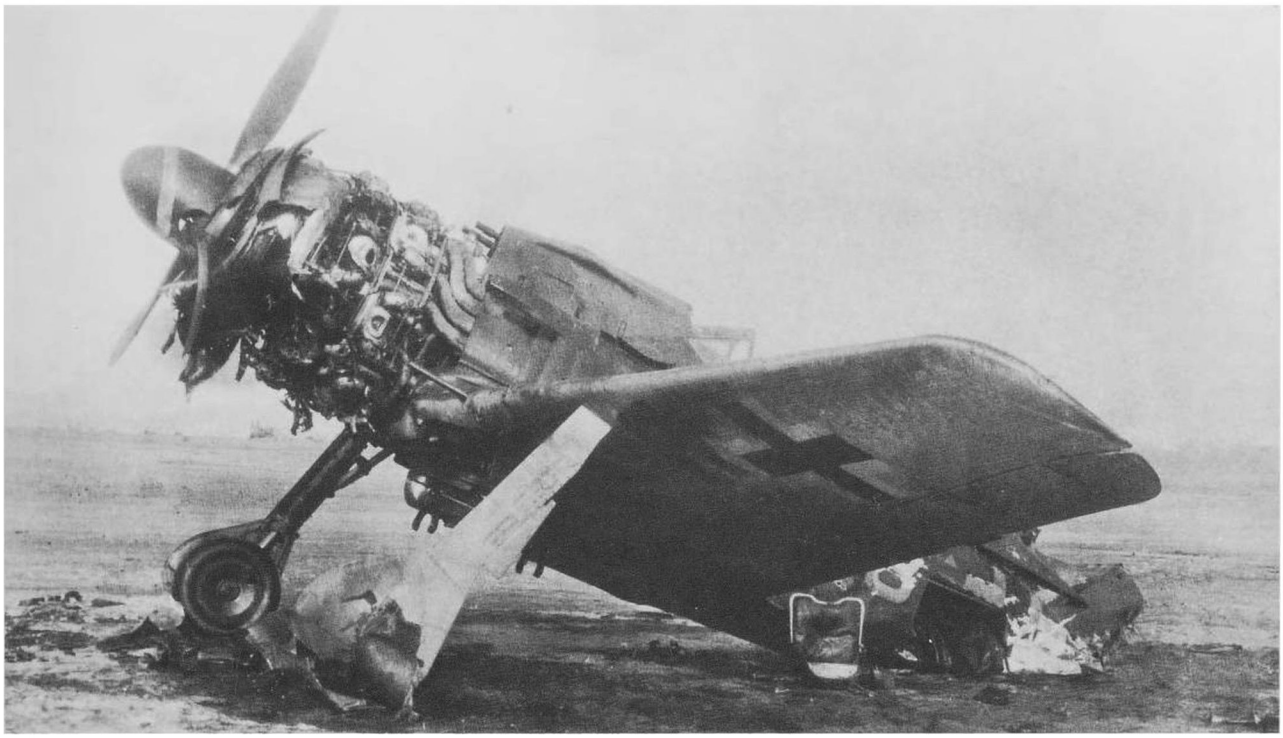


Focke Wulf Fw 190 A, found in Khersonyes, Sevastopol.

Another view of the same aircraft, number "2", color unknown.



Khersonyes, Sevastopol turned out to be treasure trove for Fw 190 wrecks. This Fw 190 A, code ??+WQ, was also found there in 1944.

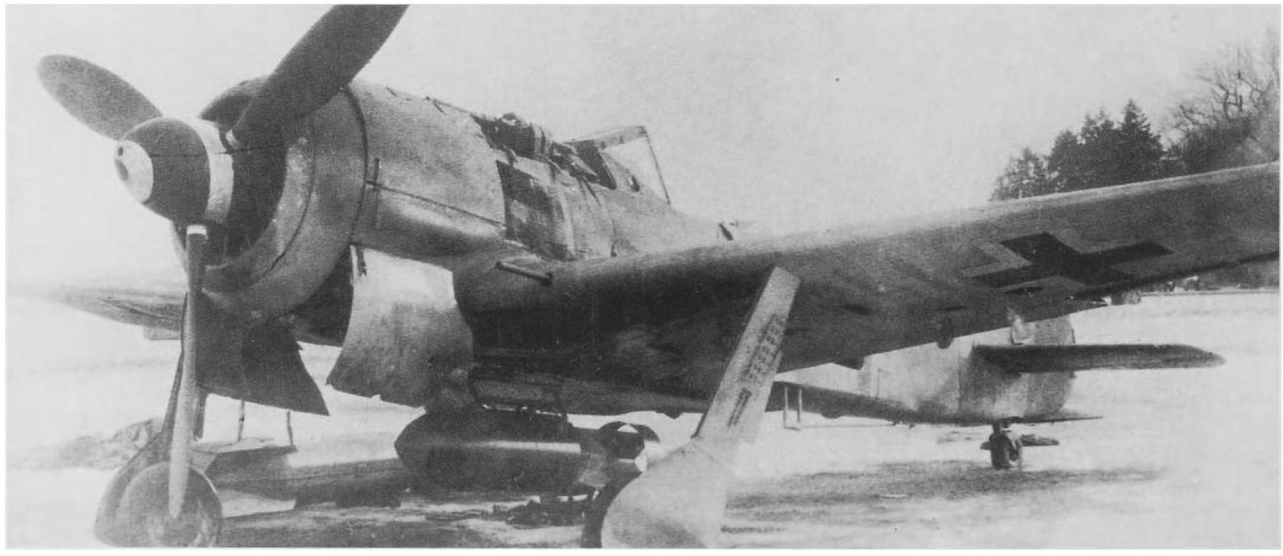


The remains of a Fw 190 A blown up by retreating German troops.

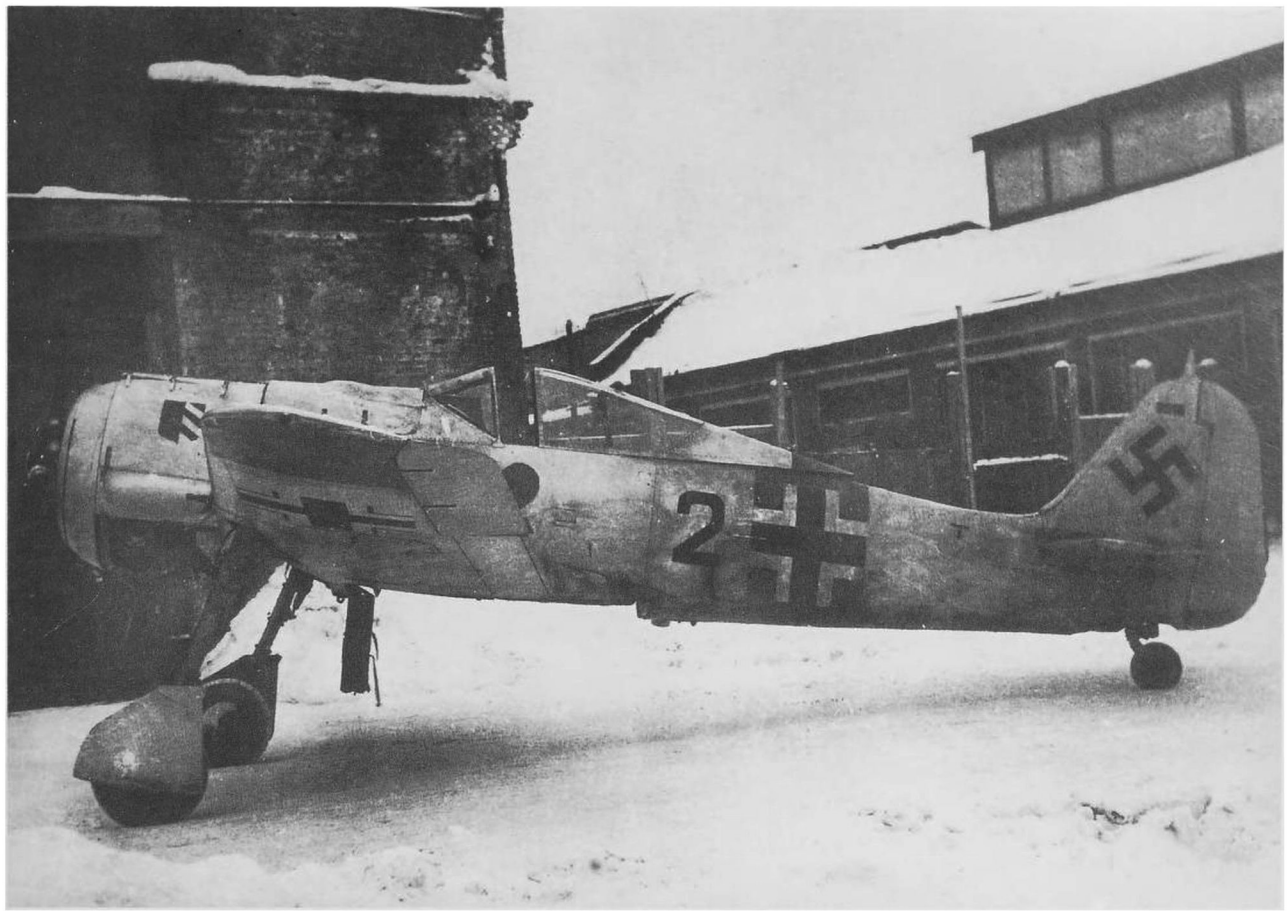
Fw 190 A-4 flown by Fw. Bremer of 1./JG 54. The aircraft was forced down near Krasnogorye on 13 July 1943.

Another interesting Fw 190 A found in Khersonyes on 12 May 1944. This may have been the aircraft of Maj. Heinz Frank, *Gruppenkommandeur* of II./SG 2 *Immelmann*, although this cannot be confirmed. The *Werknummer* on the Fw 190 tail in front of the aircraft is 190079.

Souvenir photo at a scrap yard. This Fw 190, which bears the tactical insignia of a *Gruppenadjutant*, lies atop a Ju 52/3m. Note the swastika in outline form.

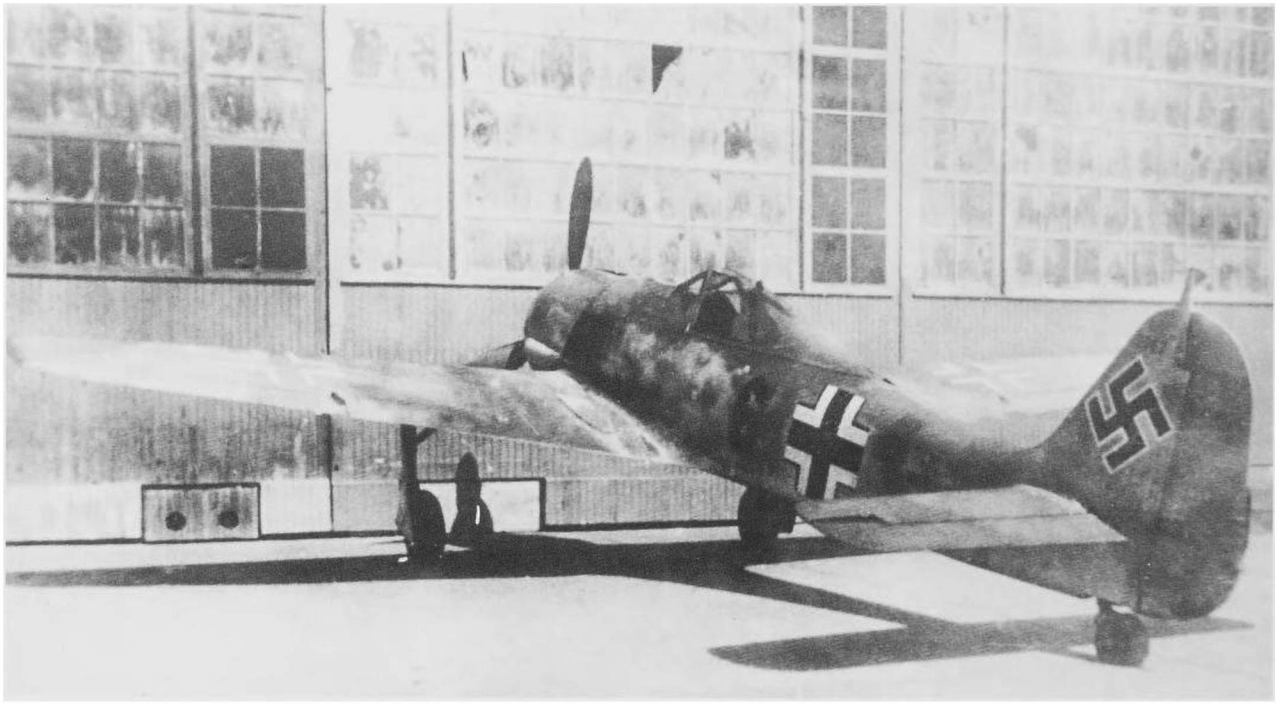


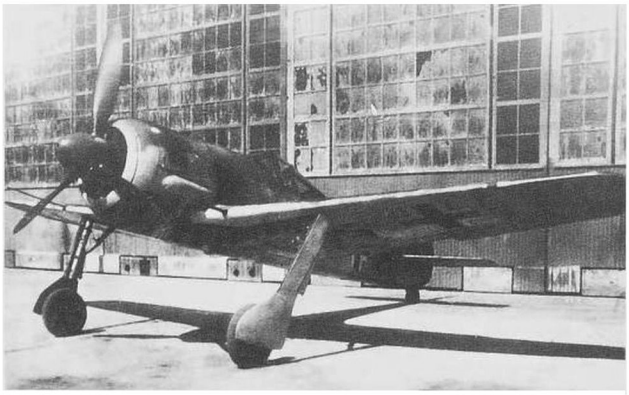
Two photographs of a Fw 190 close-support aircraft with bomb rack under the fuselage. By the time the second photo had been taken the aircraft had already been cannibalized to a large extent.

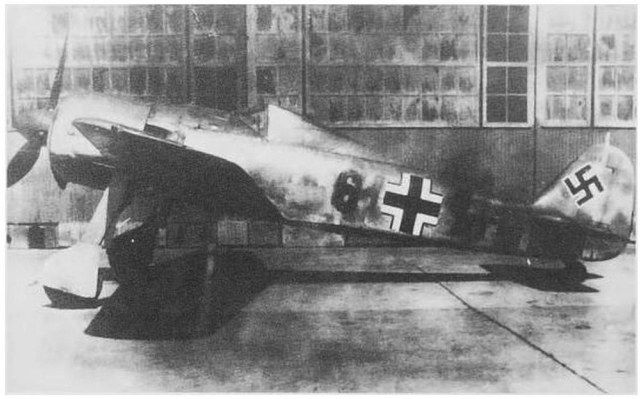


Focke Wulf Fw 190 A-4 of I./JG 54, flown by Uffz. Heinz Brand. On 16 January 1943 Brand had to make a forced landing on frozen Lake Ladoga. The aircraft suffered little damage and was repaired by the Soviets in Leningrad.

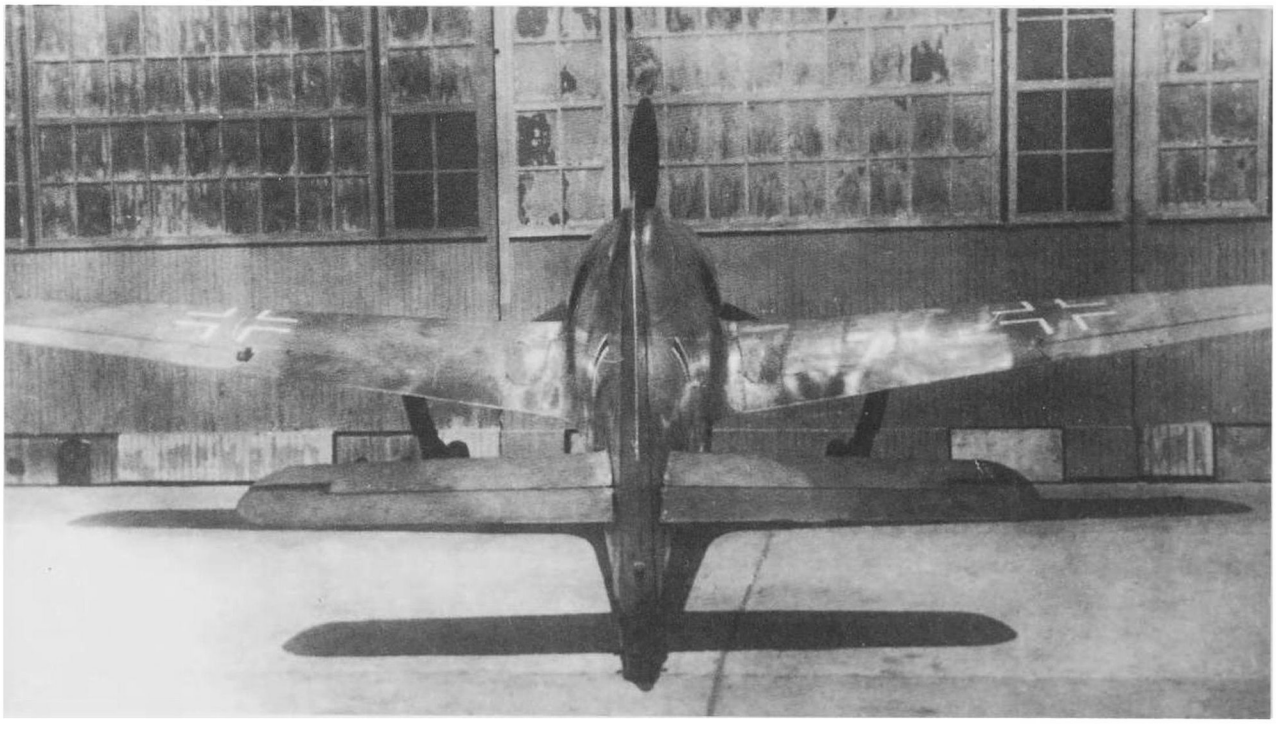
Uffz. Brand's Fw 190 A-4 received a new paint scheme in 1944. The yellow areas beneath the wings and on the fuselage have disappeared. Also note the new propeller. The aircraft was added to the TsAGI's technical display.





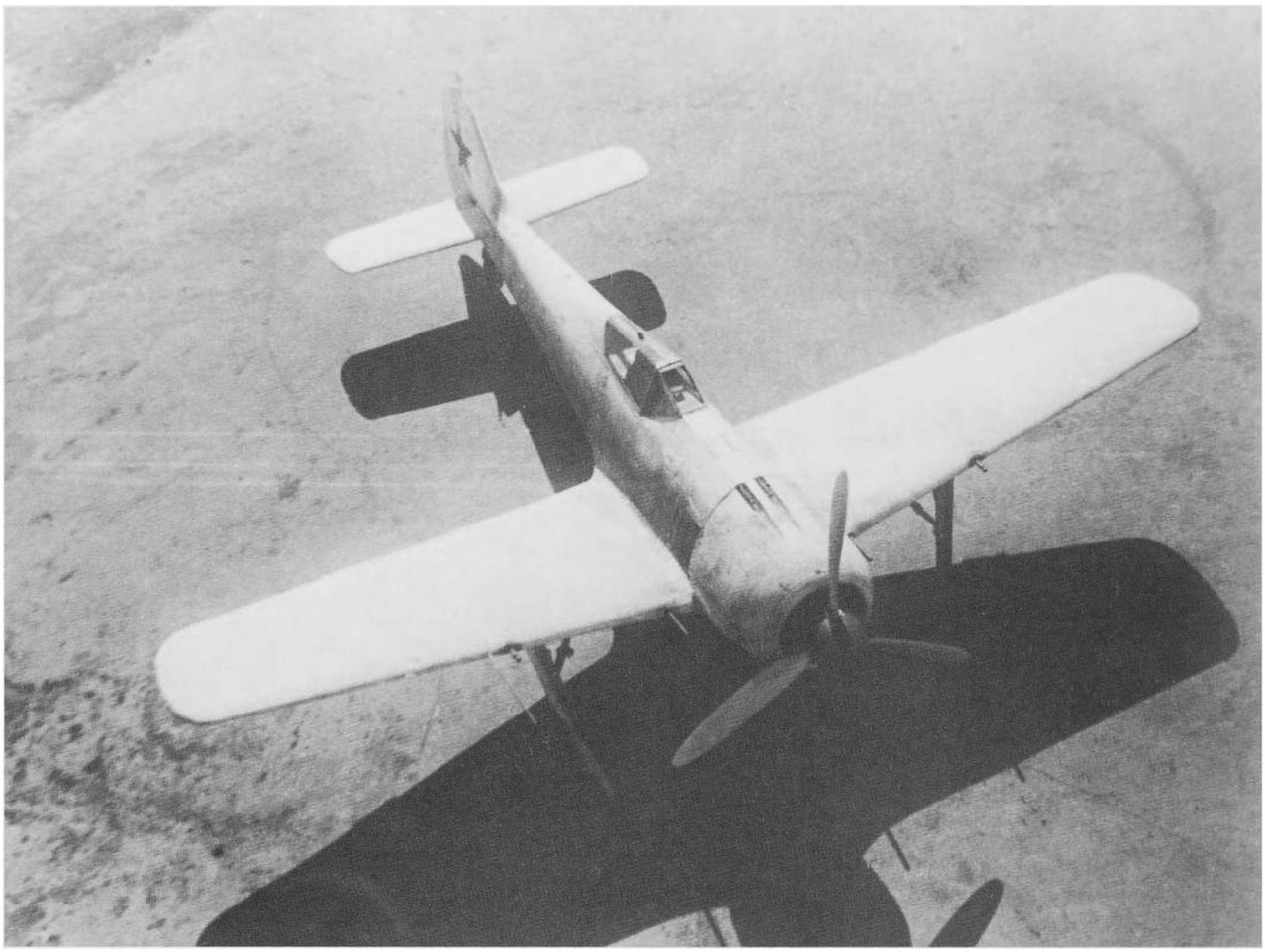


A series of NII VVS archive photographs of a Focke Wulf Fw 190 A-4, *Werknummer* 2367.
The aircraft wore the number "6" and the tactical insignia of the *IV. Gruppe*. The lower part of the engine cowling, the fuselage band and lower wingtips were yellow.

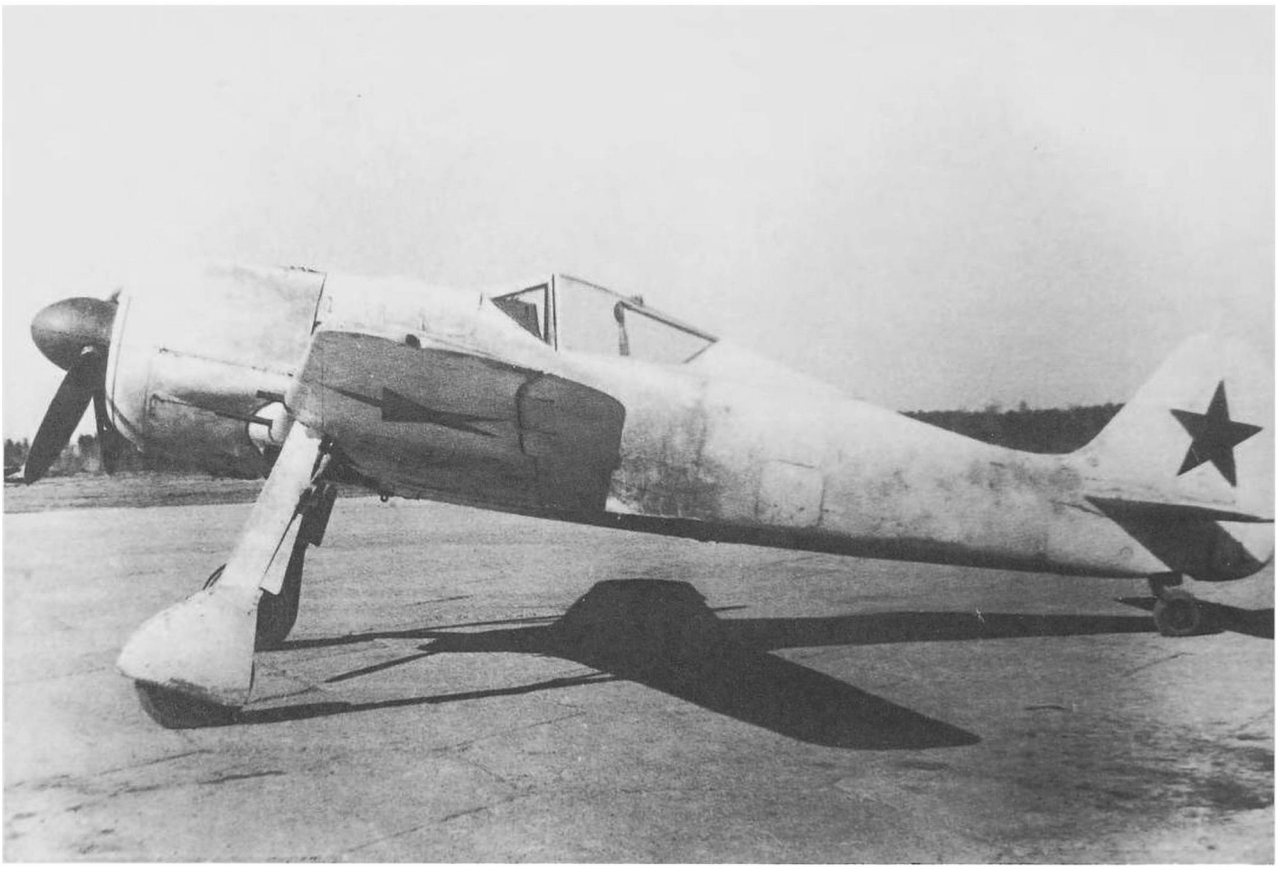


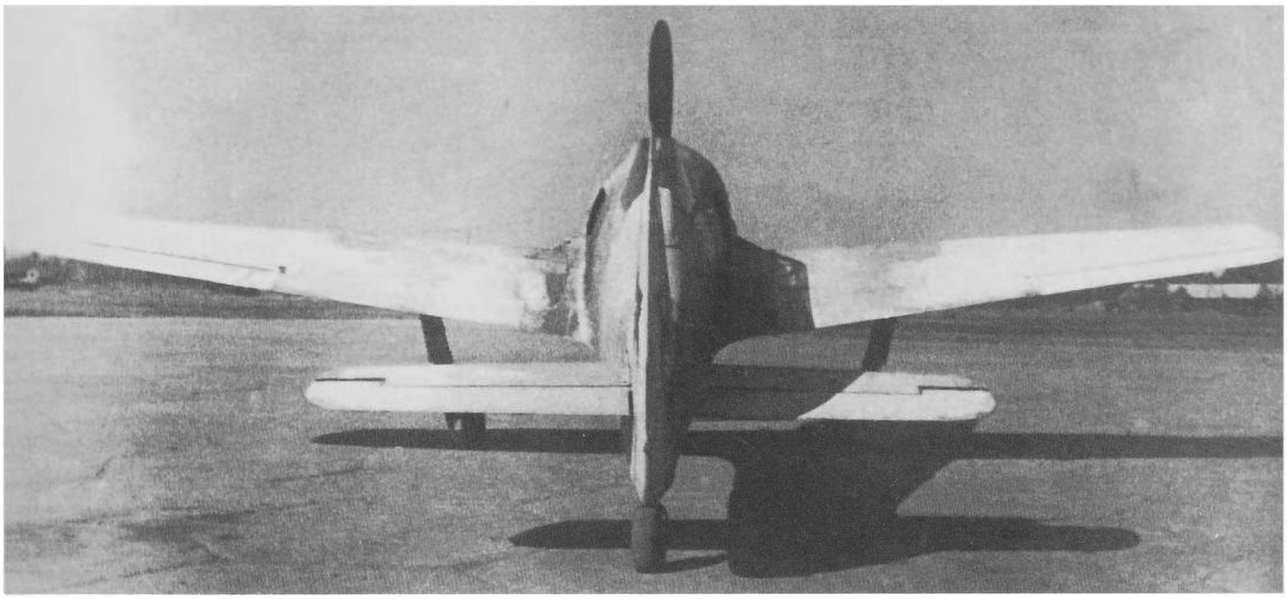
Another Focke Wulf Fw 190 during winter trials at the NII VVS test center.

Very nice front view of the same aircraft with ETC bomb rack in place. Note that the red stars were applied only on the tail, fuselage and wing undersides.

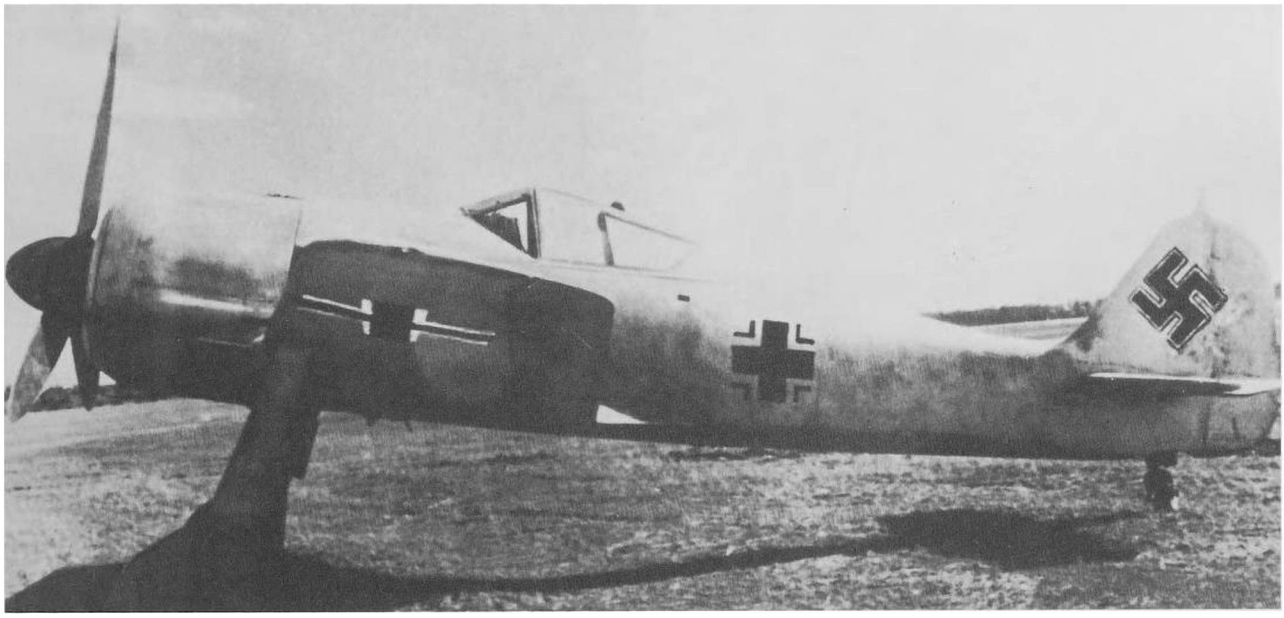


Another Focke Wulf Fw 190 under test by the NII VVS. In contrast to the previously illustrated machine, this one has red stars on the tail and wing undersides only. The top photo shows the classic lines of this impressive fighter aircraft.

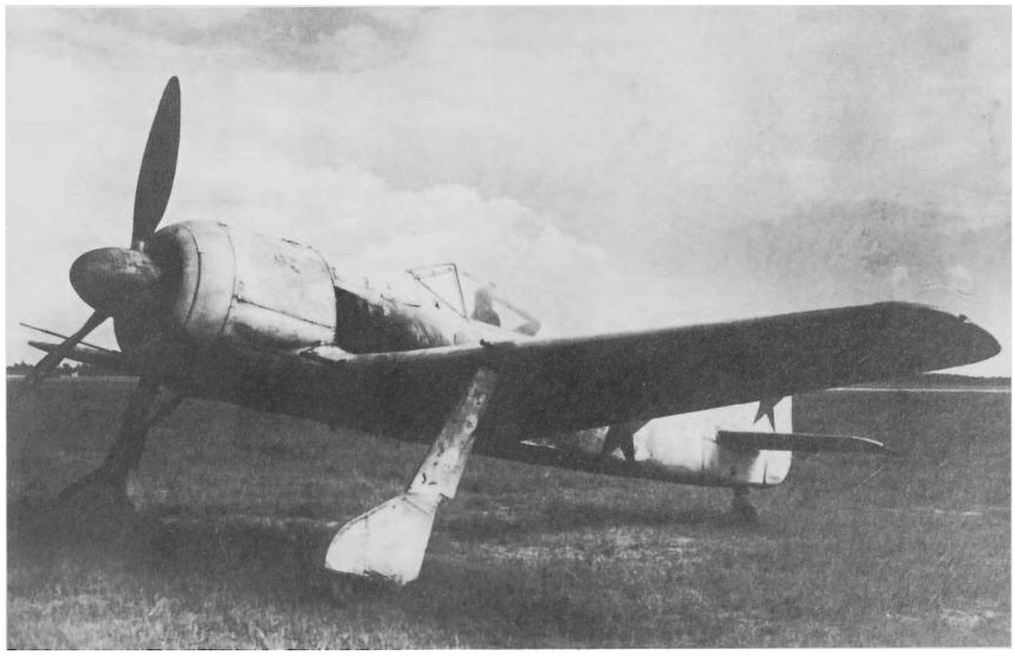




Rear view of the machine illustrated on the previous page.



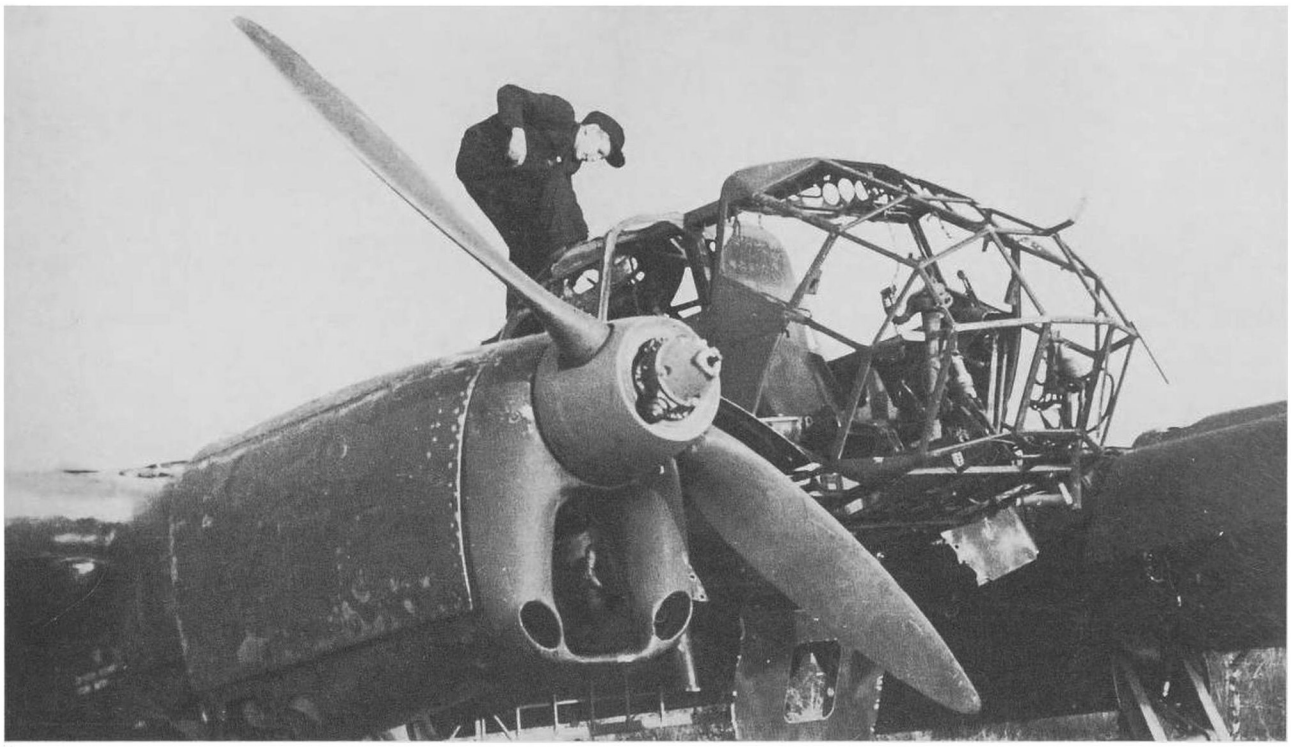
The same machine in a propaganda photograph with retouched crosses and swastika.



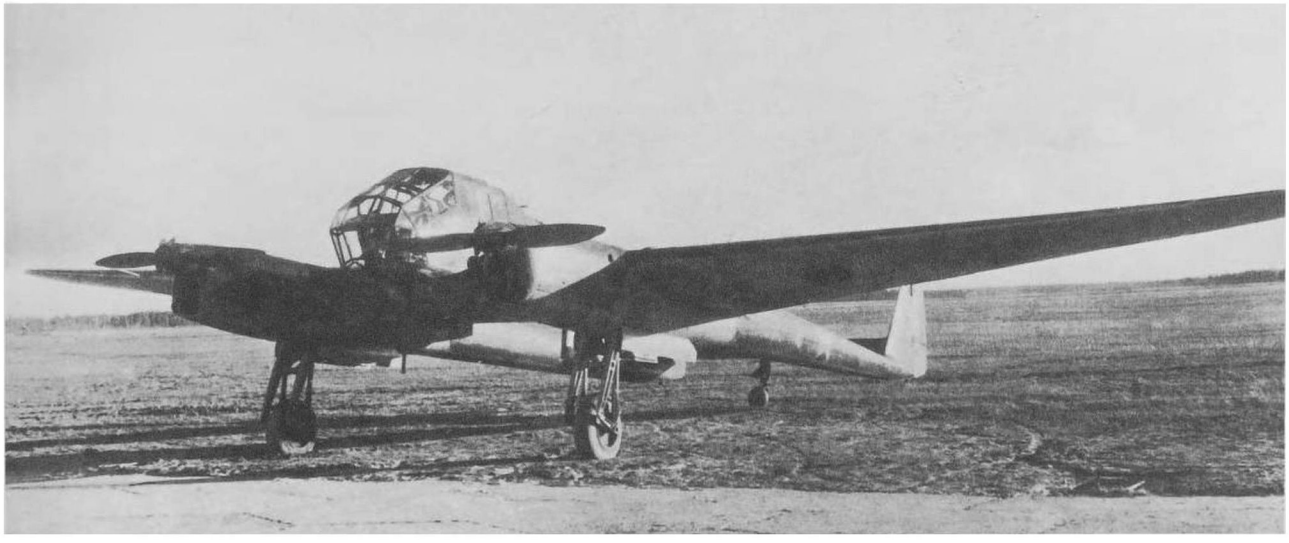
Uffz. Helmut Brandt's Fw 190 A-4 during trials at the NII VVS test center. The remains of the I./JG 54 *Gruppe* emblem may still be seen on the engine cowling.

Soviet troops swarm over a Focke Wulf Fw 189 captured following a forced landing. A crew member's parachute lies on the wing. Note the shattered wooden propeller blades. The Fw 189 proved of great interest to the Soviets, who attempted to develop a similar type after the war.

These two Fw 189 A-2s were captured in Latvia in May 1945. Both aircraft had formerly served with Stab I./NAGr. 5. They bore the codes Y2+ZB (W.Nr. 2274) and Y2+RB (W.Nr. 2345).



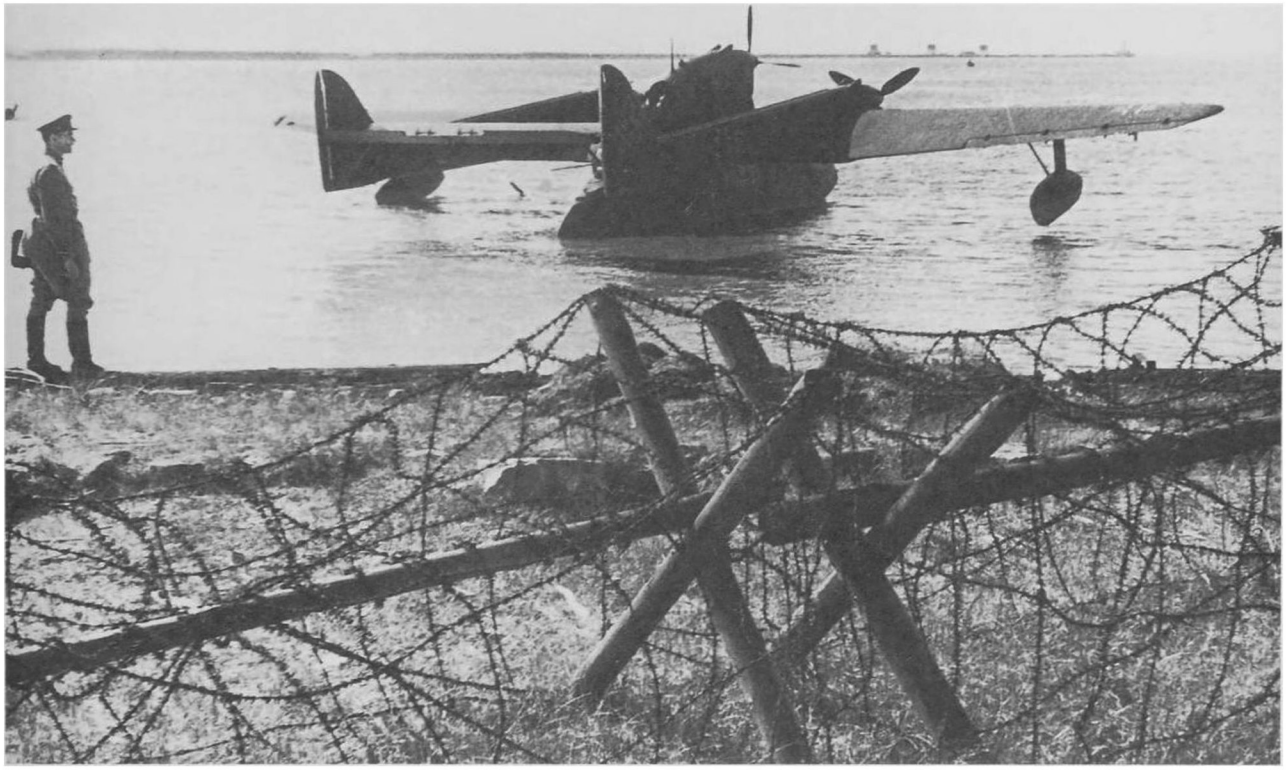
Close-up of Focke Wulf Fw 189 A2 U2+RB. The aircraft was no longer flyable when it fell into Soviet hands.



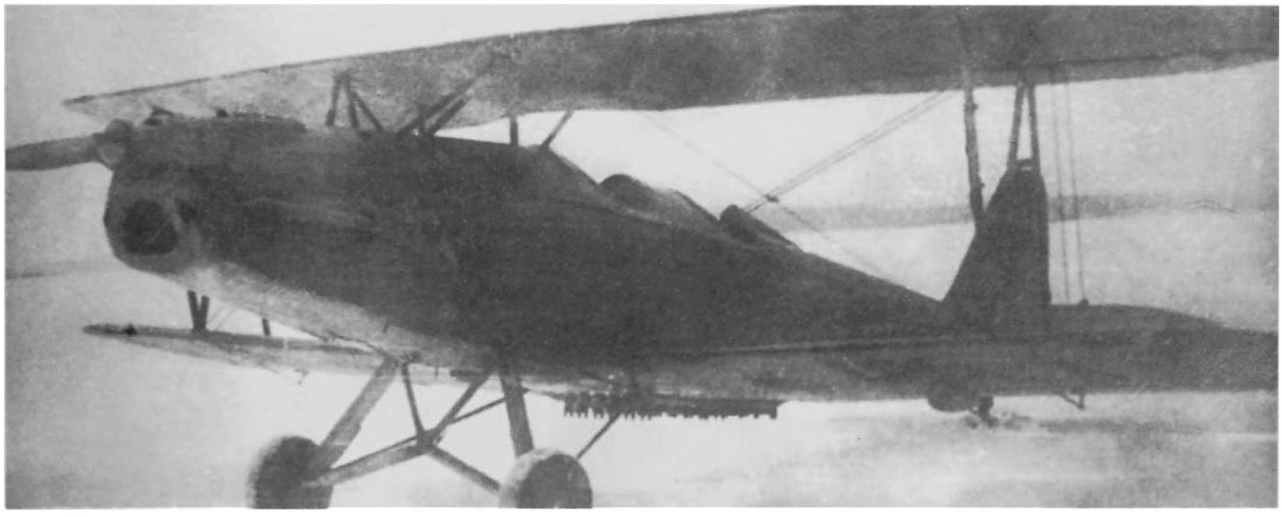
The center and bottom photographs depict a Fw 189 A-2 undergoing flight trials at the NII VVS test center. Soviet insignia have already been applied to the aircraft.

This Arado 232 took part in one of the most mysterious operations conducted by the German armed forces during the war. In autumn 1944 it transported a special unit to a point just outside Moscow. Equipped with Soviet uniforms, ammunition and weapons, the team's mission was to assassinate Stalin, however it was apprehended and handed over to the NKVD. There can be little doubt as to its subsequent fate.

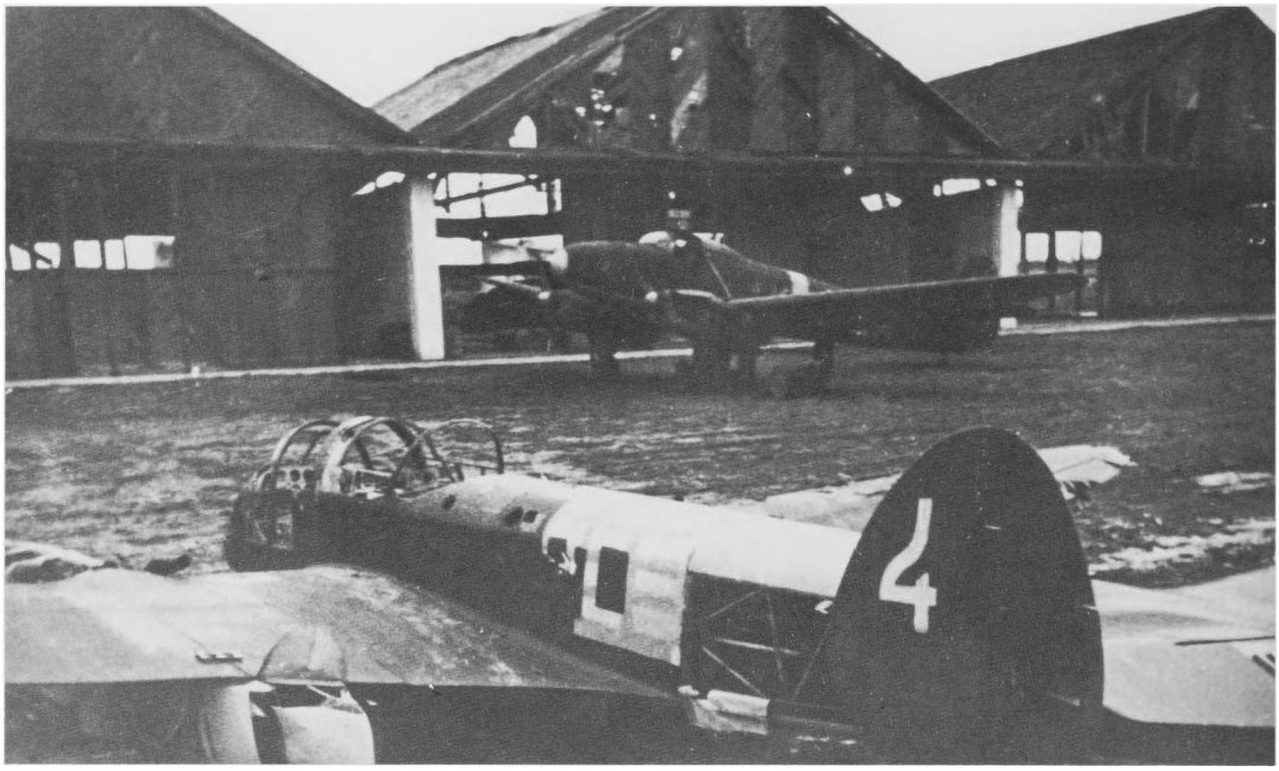
Crash-landed Dornier 217 M, location unknown.



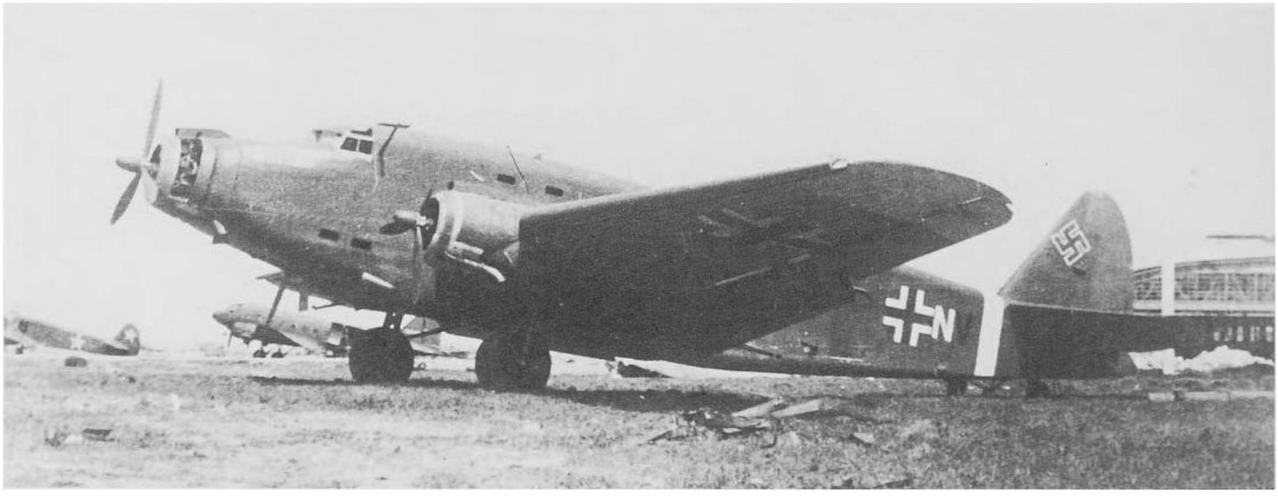
A Blohm & Voss Bv 138 captured in Ventspils in May 1945. It is not known if the Soviets made use of this type after the war. The letter "D" is visible on one of the fuselage booms.



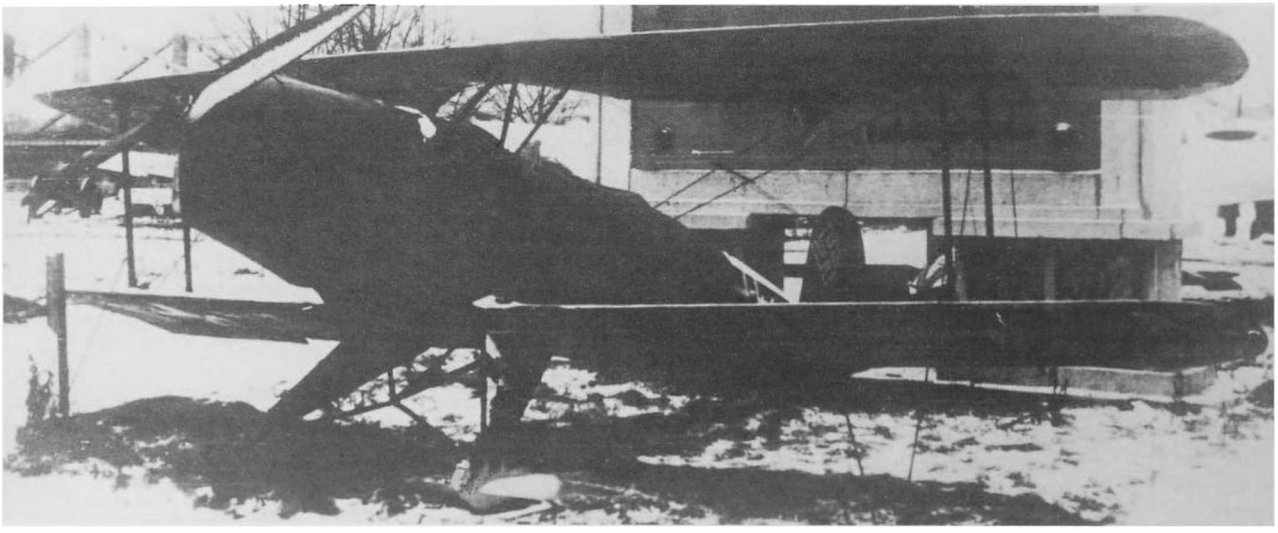
Having previously served with the *Luftwaffe* as a night close-support aircraft, this Gotha Go 145 is seen in Soviet service. Note the underwing bomb racks.



Focke Wulf Fw 58 Weihe, probably in the Ukraine, autumn 1941. In the foreground is a damaged Yak-4.



A *Luftwaffe* Savoia-Marchetti S.82 captured at Sevastopol in 1944. In the background a C-47 and a Yak-6.



This Bücker Bü 131 Jungmann was included in the display of equipment in Moscow's central park in 1944-45.

Messerschmitt Bf 110s waiting to be scrapped after being taken out of service. This photograph was taken by advancing Soviet troops in 1945, location unknown. The camouflage worn by the aircraft suggests that they had served with a night fighter unit.

Captured Messerschmitt Bf 110 C on display in Moscow's Central Park for Culture and Recreation. The machine was on display there from 1943 to 1945. Its subsequent fate is not known. The aircraft still wears its original *Luftwaffe* markings. Note the oversize "P" beneath the port wing.

Group photo of officers of the 16th Frontal Air Army in front of a row of parked He 111s at Liubertsy airfield near Moscow during preparations for the big victory parade in 1945. From left to right: I.V. Fedorov, N.I. Svitenko, A.E. Borovykh, P.I. Murav'ev, N.S. Pavlushkin, S.K. Kuznetsov, V.I. Merkulov, V. Kubarev.
Below the same officers pose with another aircraft.

1941-1945

The German *Luftwaffe* ceased to exist in May 1945, however, German aviation lived on. The construction of several types continued in occupied areas, while others were captured intact.

Of course, the Soviet Union tried to make good its losses through reparations. The greatest gains in aviation technology were not achieved in this way, however. An effort was made to use German technology to address weak areas in the Soviet aviation industry.

Two-thirds of the entire German aviation industry was located in areas occupied by the Soviets. The biggest firms were Junkers in Dessau, Siebel in Halle, Heinkel in Rostock-Warnemünde and Oranienburg, Messerschmitt in Wiener-Neustadt, Arado in Babelsburg, Henschel in Erfurt and Berlin, and Dornier in Wismar.

The selection of aircraft and facilities captured by the Soviets looked promising. Many of the facilities were no longer usable, but several design bureaus were still functioning and continued their work under Soviet direction.

The most valuable equipment was taken to the USSR. The first trials were carried out at Podberezie-Ivankovo, approximately 130 kilometers from Moscow.

Components, plans, and engines from the Junkers Motorenwerke in Bernburg and Eisenach were taken to a second test facility in Krasnaya Glinka, not far from Samara. The two test sites were intended to house the German specialists taken to the USSR.

Interesting aircraft, as well as spare parts were passed from special distribution centers to military and civilian recipients. The bulk of captured documents were used by transport, naval, and fighter units equipped with captured equipment after the war.

The number of captured aircraft was rather low, however, the range of types was great. Maintaining a large mixed fleet of foreign aircraft was impossible, and operational use was restricted to two types.

The only fighter used by the Soviet forces was the Fw 190 D-9. Two fighter regiments of the Baltic Fleet operated the type in 1945 and 1946. It is interesting that the Soviet Union, which produced huge numbers of its own fighters along the way, nevertheless decided to equip two units with this type.

The Fw 190 D-9 represented the apex of German piston-engined fighter development, surpassing contemporary Soviet designs.

Several Ar 196 floatplanes were operated by the navy in the Far East. Some aircraft had German engines, while others are claimed to have been refitted with Soviet power plants. The aircraft were probably Ar 196 A-5s that were transported from Germany and equipped with paired Soviet machine-guns.

The end of the war did not see an end of test activities by the NII VVS. The following types were tested there in 1945-46:

Ju 388
He 162
Me 163
Me 163S

Four NII VVS test pilots flew the Me 163. All flights were unpowered, as no suitable power plants were available.

On 15 August 1945 pilot Kochetov made the first flight in a Me 262 from Schiolkovo airfield near Moscow. The Soviets first learned of this aircraft shortly before the end of the war, and one was even shot down by Soviet ace I.N. Kozhedub.

An example of the Ar 234 was discovered in Damgarten. NII VVS representative A. Kubyshkin examined the machine to determine whether it was flyable. The aircraft was taken to Rechlin, where it was tested in spite of problems with the power plants and undercarriage.

At a conference of the leading Soviets in the Kremlin in December 1945, discussions were held with representatives of the aviation industry about the possibility of producing German aircraft in quantity, especially the Me 262. Such an idea was frustrated by technical and operational problems with the type. There was also a desire to avoid giving a negative impression of Soviet designers, although the B-29 was being built in quantity by special order of Stalin. The aircraft was built in large numbers under the Soviet designation Tu 2.

German influence was evident in many Soviet designs. The Su 9 fighter and fighter-bomber designed by P.O. Sukhoi was very similar to the Me 262. Externally it differed from the Messerschmitt fighter in having a fuselage of oval cross-section and unswept wings.

Another prototype produced by the Sukhoi development team was the Su 12 (RK), which appeared in 1947. It was essentially a developed version of the Fw 189 with more powerful radial engines and other modifications.

Both the Su 9 and the Su 12 (RK) were built as prototypes only and did not enter production.

There were other examples of German influence. The Ilyushin Il 22 had the same general layout as the He 343 project, a four-engined development of the Ar 234.

The organization of German development teams in the USSR was also an interesting affair. The Allies were extremely interested in Germany's scientific and technical potential. The most promising field was undoubtedly aviation. After the war the Allies made significant efforts to acquire the knowledge possessed by German specialists.

On the basis of lists prepared in advance, whole groups of German specialists were taken to the USSR. It is estimated that more than 600 people were deported on the night of 21-22 October 1946. They were concentrated into a few design teams, and in 1946 began work in a small city called Podberezie, near Moscow. Aviation specialists were also singled out in the POW camps.

Among the scientists was Professor Günter Bock, former head of the research department of the Aviation Research Institute in Berlin-Adlershof. Another was Rudolf Rental, project director of the Me 163 and Me 262 programs. Dr. Adolf Betz was a specialist in research into swept wings. Two other notables were Dr. Rudolf Baade, former chief designer for Junkers, Siegfried Günter, designer of the He 162, and Hans Wocke, designer of the Ju 287.

Siegfried Günter went voluntarily to the USSR, even though he was working in a garage in French-occupied territory. In the USSR he continued his work on the Ta 183 and conducted preliminary design work for the MiG 15.

The status of the German specialists was extremely uncertain. They were not officially prisoners of war, however, their personal freedom was extremely restricted. The Soviet Union had already gained a great deal of experience from the teams, however, it was a one-way street. All knowledge flowed to the Soviet side. Each team worked independently, and there was no exchange of knowledge. This unscientific way of working was quite common at that time.

The chief designer of OKB 1 (Development Bureau 1) was Rudolf Baade, who had previously worked for Junkers. His Soviet deputy was P.N. Obruchev.

The team's main task was to continue work on Junkers projects begun in Germany, based on the latest scientific knowledge.

OKB 2 was led by Hans Rösing, a former Siebel engineer. His deputy was A.Ya. Bereznyak. This development bureau consisted of aircraft and power plant development sections and a physical laboratory. Its task was the development of a supersonic aircraft with rocket propulsion.

In 1948 S.M. Alexeev became director of the OKB and coordinated further work. OKB 1 developed a total of six aircraft and projects, which were designated as follows:

EF-126 Single-seat experimental aircraft with Argus ASO 44 power plants above the fuselage. The aircraft was completed in 1947, however, its performance was extremely poor and the project was abandoned.

EF-131 A bomber with six Jumo 004 turbojets and forward-swept wings. The engines were housed in clusters of three beneath the wings. The prototype was completed in Dessau, and ground trials began in the summer of 1946. Soon afterwards the aircraft was moved to the USSR for further testing. In spite of good performance, the project was halted in 1947.

EF-132 This was a heavy bomber with a takeoff weight of over 100 metric tons. It was to be powered by six Jumo 012 engines. Work was abandoned in 1948 with the aircraft in the mock-up stage.

Bomber 140 This aircraft was developed for the installation of two TKRD-AM 1 engines. When development of the power plant was dropped, it was decided to install RD-45-F (Rolls-Royce Nene) engines instead. The project was headed by T.N. Nazarov. The change of power plants resulted in major design changes to the airframe which ultimately resulted in its cancellation.

Bomber 150 A twin-engined design (two AL-5 turbojets) with up to 5 metric tons of thrust. It was equipped with a tandem undercarriage and swept wings. The prototype made a total of nine flights. One of the test pilots was A.P. Vrnikov. Work on the project was halted in 1952.

Type 152 This aircraft was a development of the Type 150 for the civil air transport role. Work began in the USSR and was later transferred to the German Democratic Republic.

OKB 2 developed two aircraft, designated Type 346 and 468. There is no reliable information concerning the second project, and it is doubtful that it came to fruition.

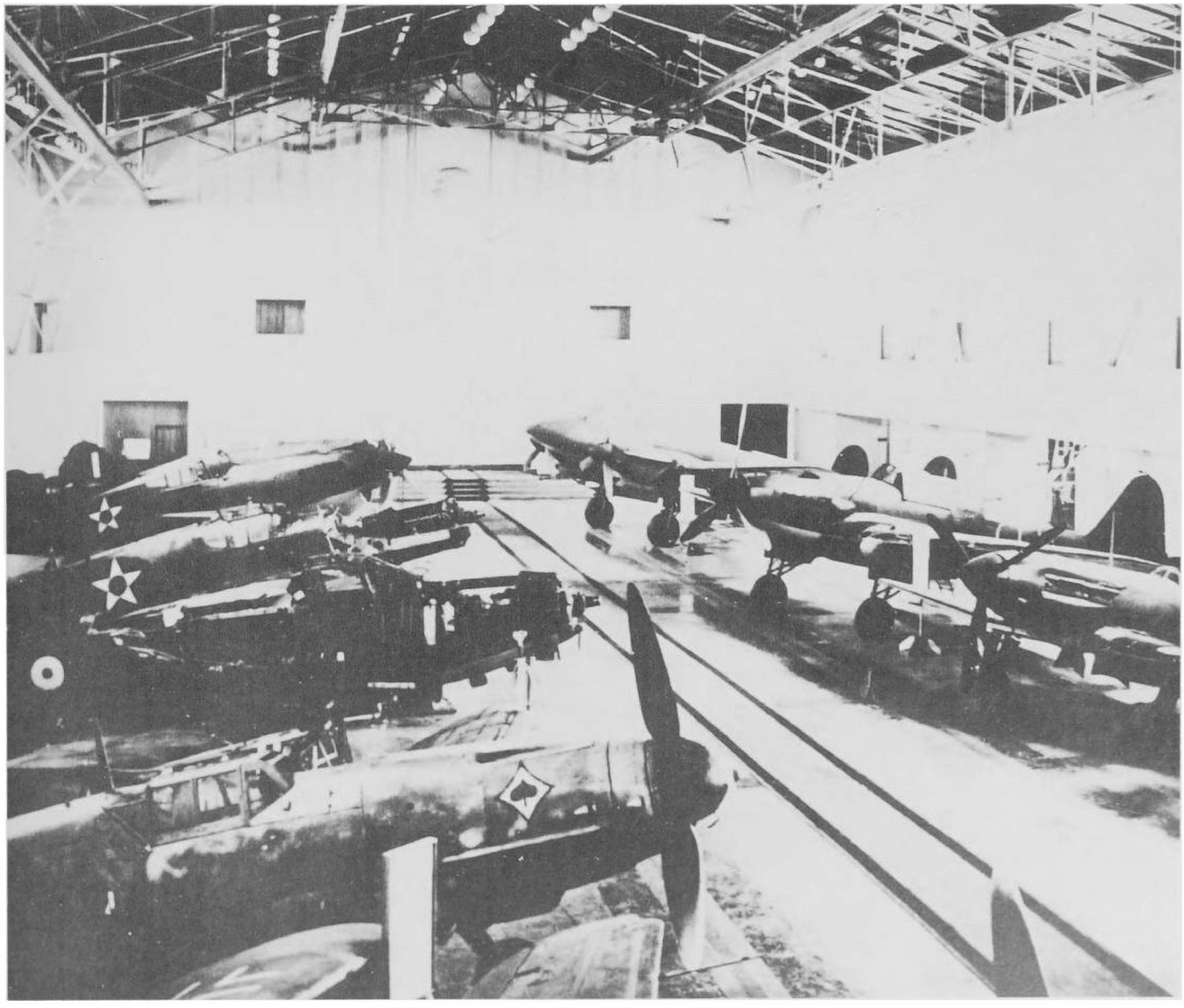
Project 346 was begun in Germany under the designation DFS 228, and later DFS 346. The program saw the incorporation of several novel design features and was pursued from 1946-1951. For various reasons progress was extremely slow.

The first flights by the unpowered aircraft were made by the German pilot W. Ziese and the Soviet P.I. Kazmin.

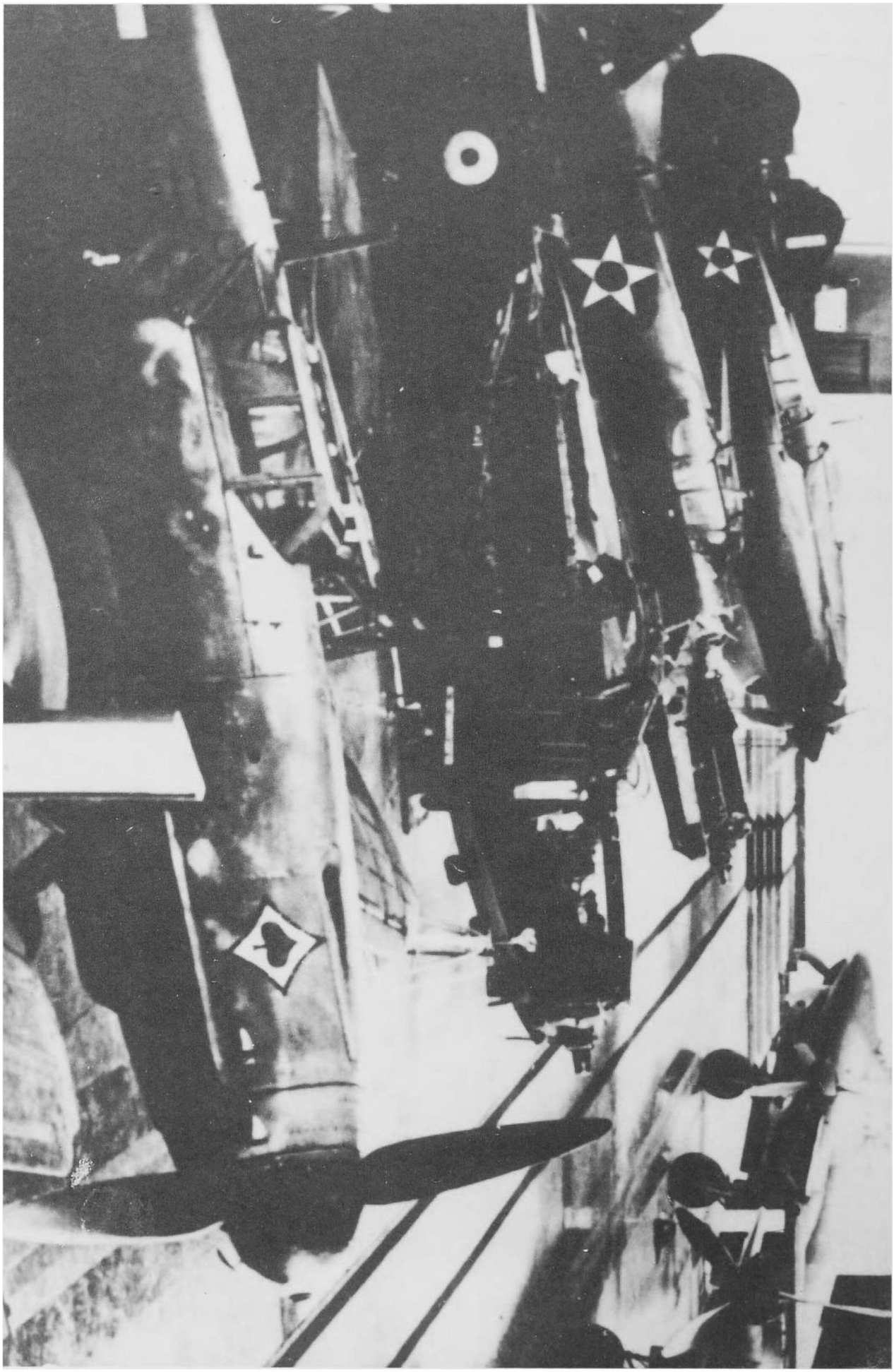
The only powered flight ended in disaster. The German pilot escaped, however, the aircraft was completely destroyed.

In 1951-52 it was declared that the OKBs' work was over, and the German teams left the Soviet Union. This move also ended almost fifty years of cooperation in the field of aviation between Russia and Germany.

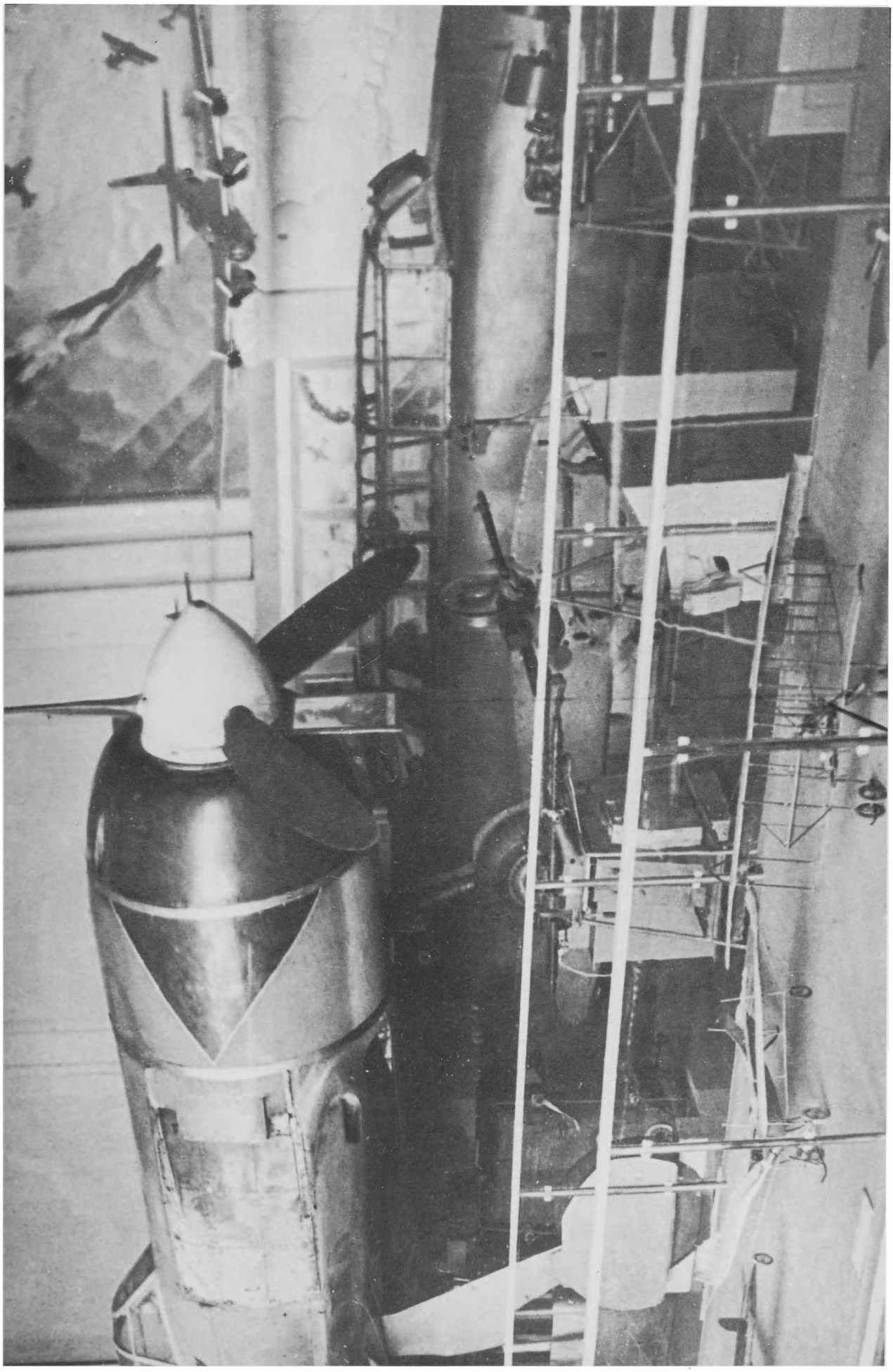
Subsequent political relations were based on the formation of two German states.



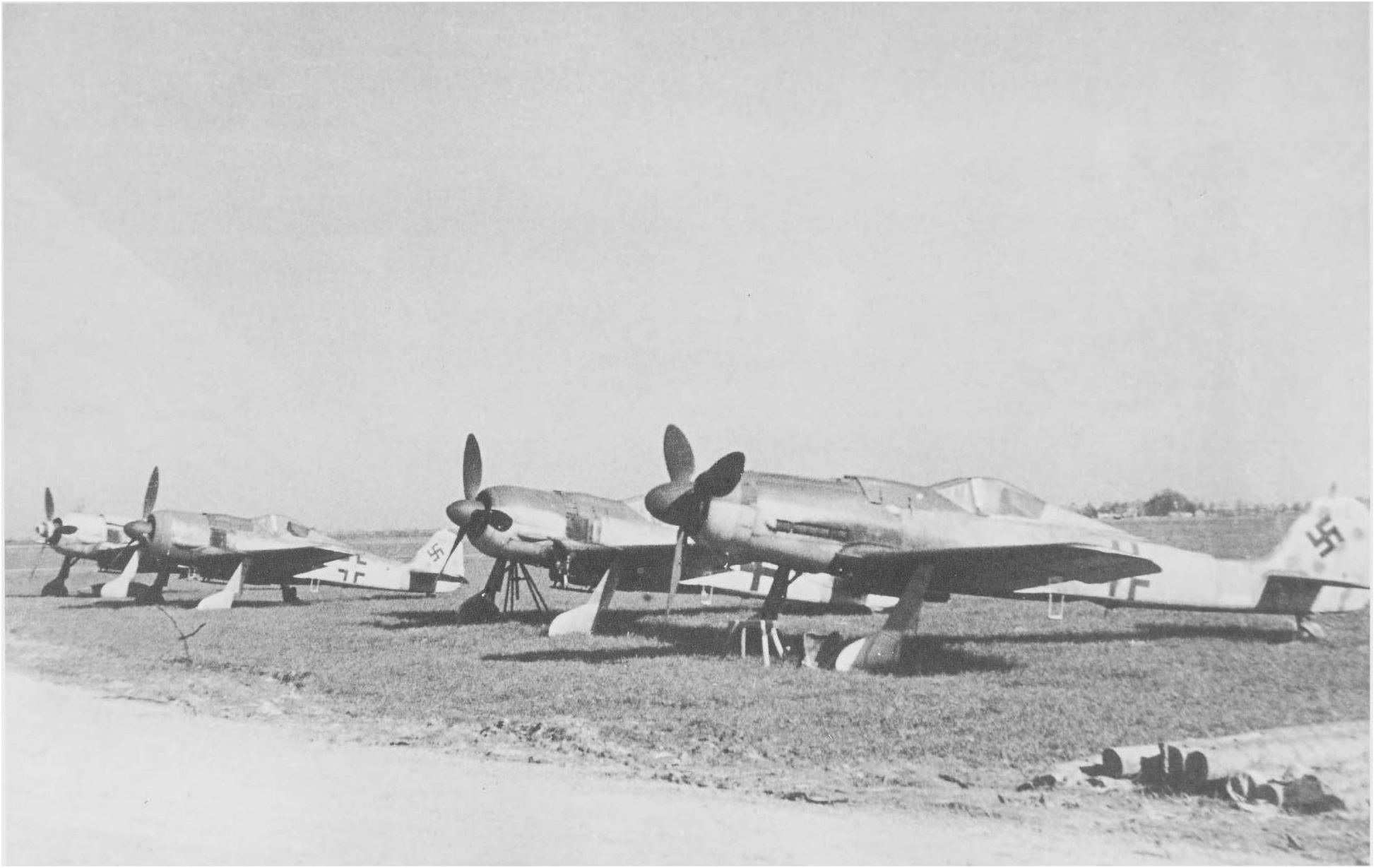
Display of fighter aircraft in the CAGI in 1943.



Another view of the fighter aircraft on display in the CAGI in 1943. In the foreground is a Bf 109 F of JG 53 Pik-As (Ace of Spades).



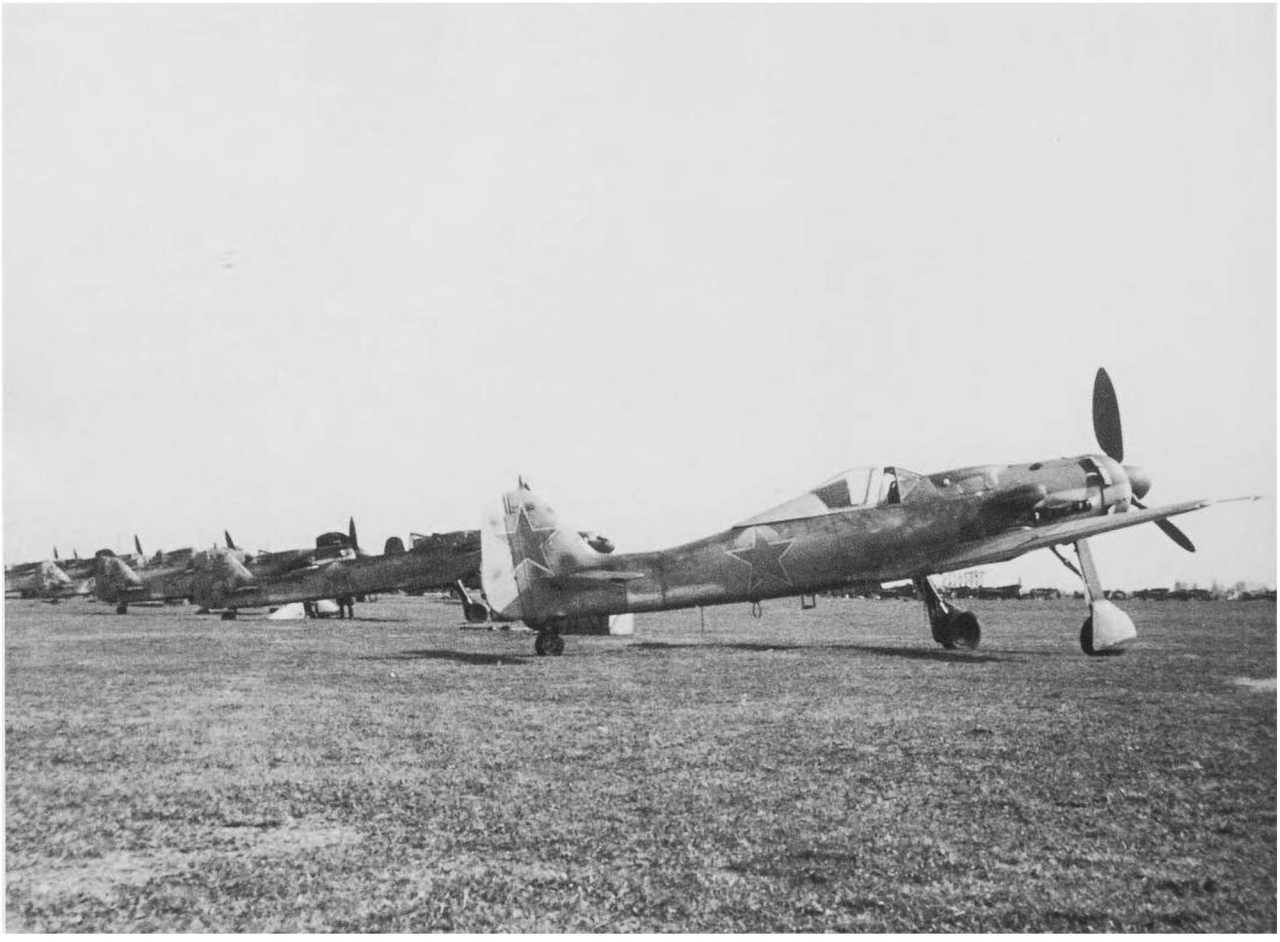
Messerschmitt Bf 110 fuselage and weapons on display in the House of Aviation in Moscow, 1946-48.



This group of Focke Wulf Fw 190 fighters of various versions was captured by advancing Red Army units in 1945. In the foreground is a Fw 190 D-9, in the background three Fw 190 F-8s. The D-9's *Werknummer* ends in 133. Unfortunately the location is not known.

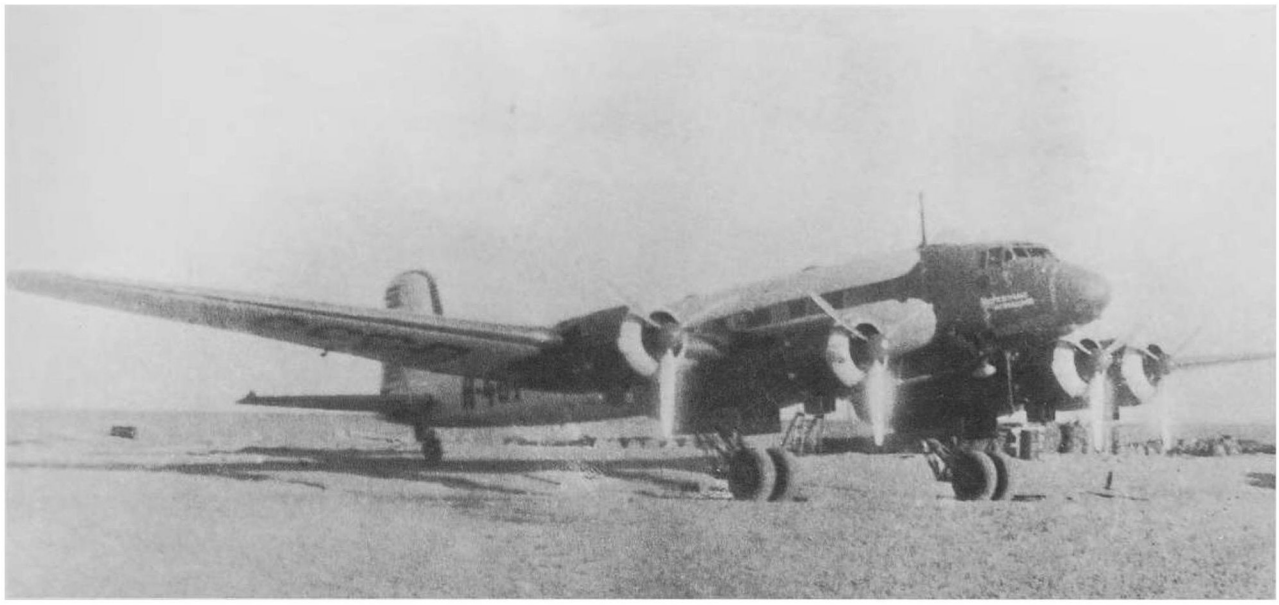
Focke Wulf Fw 190 D-9s in service with a Soviet unit. Official records suggest that it was a naval unit of the Baltic Fleet. At least six Fw 190 D-9s are visible in the various photographs. This photo was taken in Marienburg in 1945. Whether and how long the aircraft were flown in action is not known.

Warming up the engine before a test flight. The tail of the second Focke Wulf has been jacked up. Note the crudely overpainted fuselage crosses.



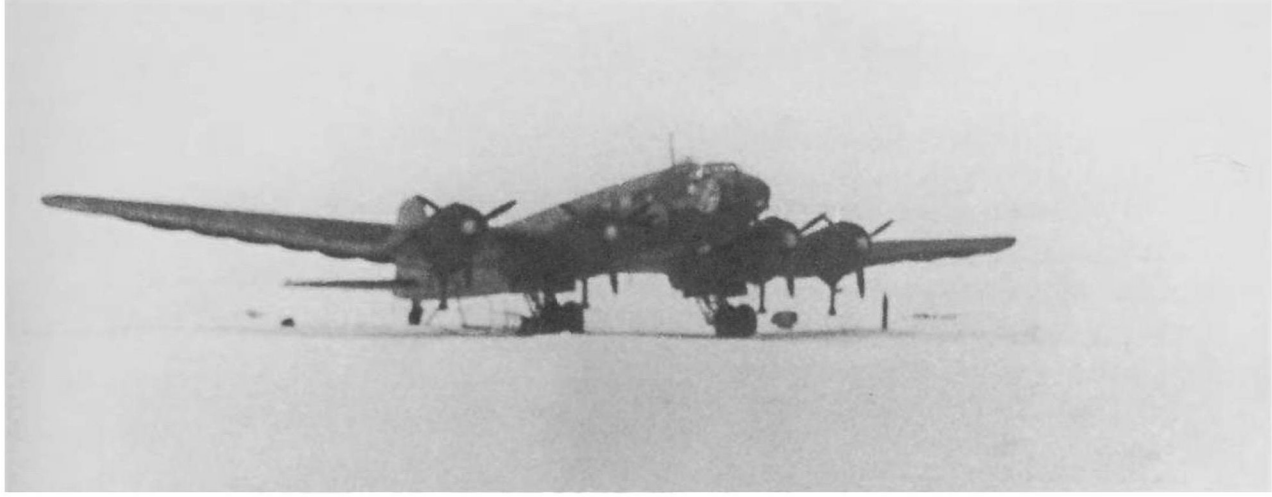
The entire unit from another angle. The *Werknummer* of the aircraft in the foreground has been partly obscured by the red star, however it begins with 2 and ends with 85. The cockpit hood appears to be a replacement item.

Another Focke Wulf Fw 190 D-9 under test at the NII VVS test center. Its *Werknummer* begins with 21 and ends with 1.



In other publications this aircraft has been misidentified as the Focke Wulf Fw 200 C – code N-400 – flown on Arctic ice patrol missions by pilot Titlov. The code N-401 is clearly visible here, however. This suggests that several aircraft of this type may have been used for ice patrols.

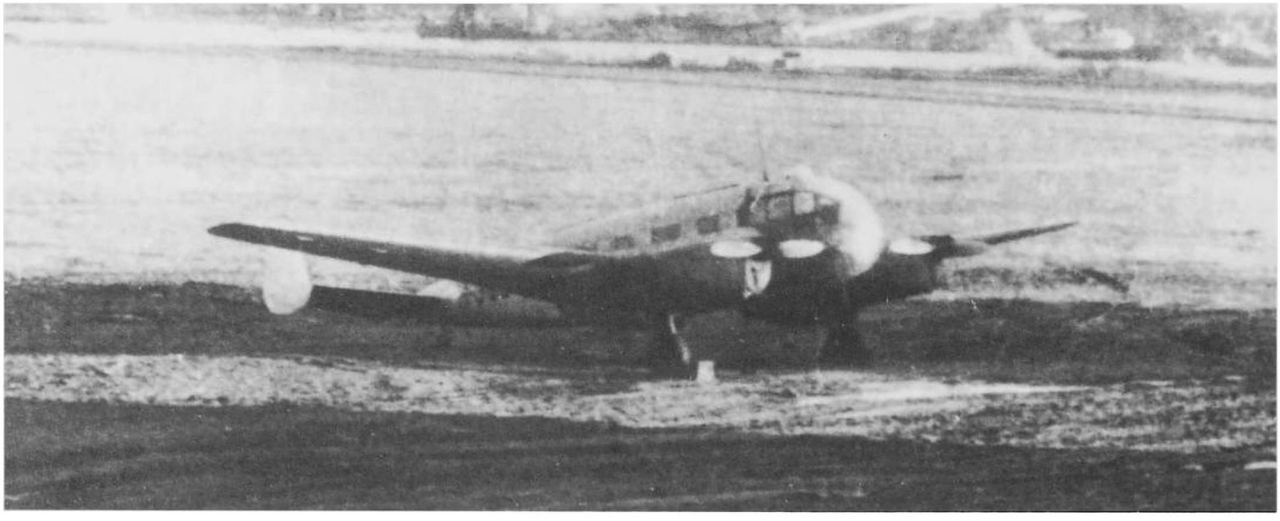
Focke Wulf Fw 200 C – code N-500 – in service in the Arctic. Parked next to the Fw 200 is a Lisunov Li-2.



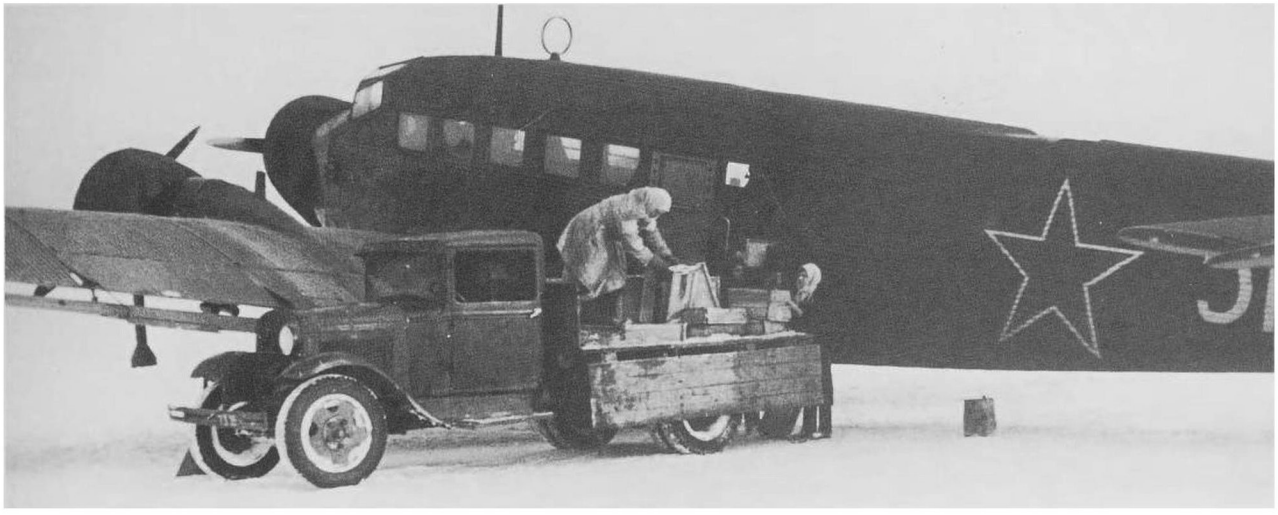
Another view of the same machine. Unfortunately the large emblem on the fuselage nose is unidentified.

(Top) Siebel Si 204 with the legend AVIAARKTIKA on the fuselage. The aircraft's nose section is unusual, possibly a modification done in the Soviet Union. The photograph was taken in Igarka, near the mining district of Norilsk on the Yenisej River.

(Right) Siebel Si 204 D in service in Khorog, probably in 1946. The aircraft's original finish is badly faded. Note the large overpainted areas covering the German crosses.



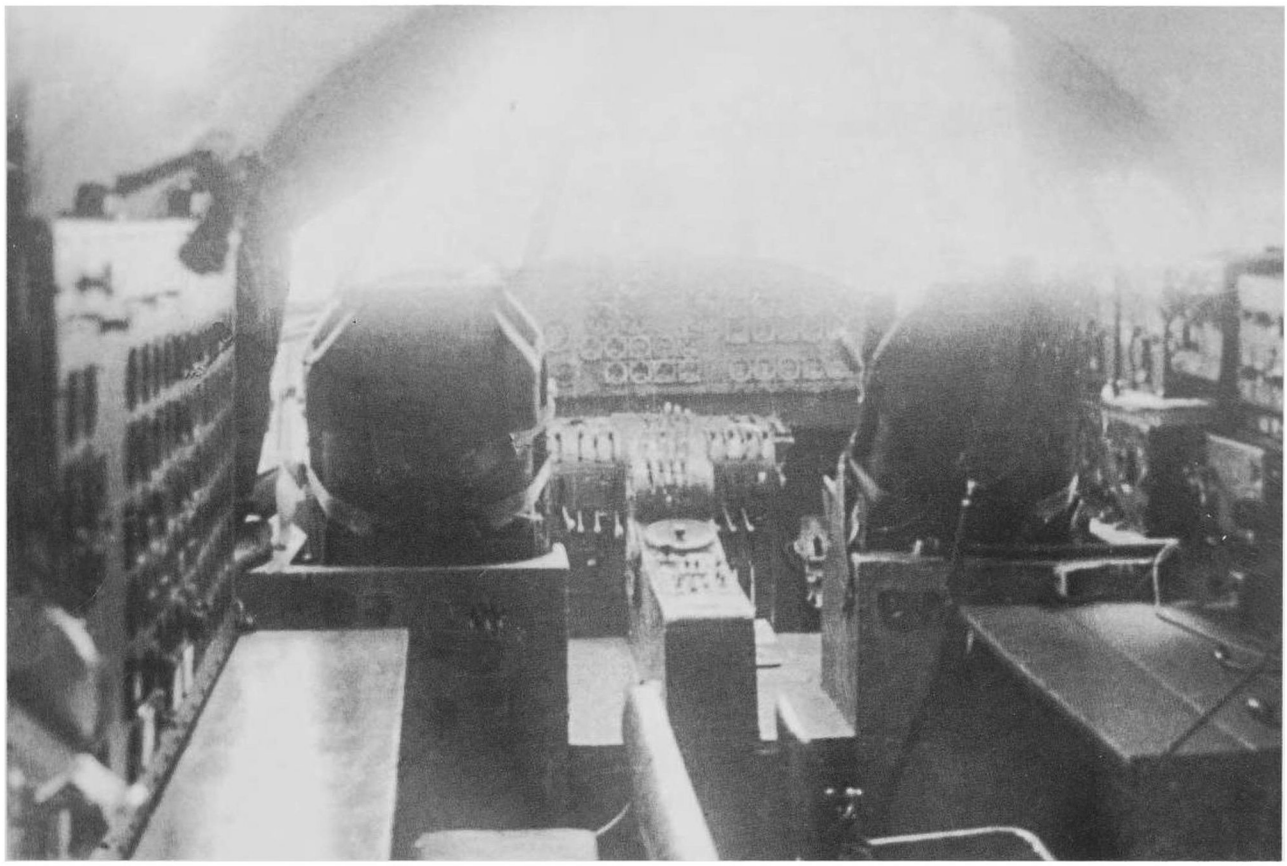
A number of Junkers Ju 52/3m transports were used by Soviet aviation until the 1950s. In the foreground is a rare Pe-8 heavy bomber.



Junkers Ju 52/3m in military service being loaded with crates of ammunition. The aircraft's code number is 51.

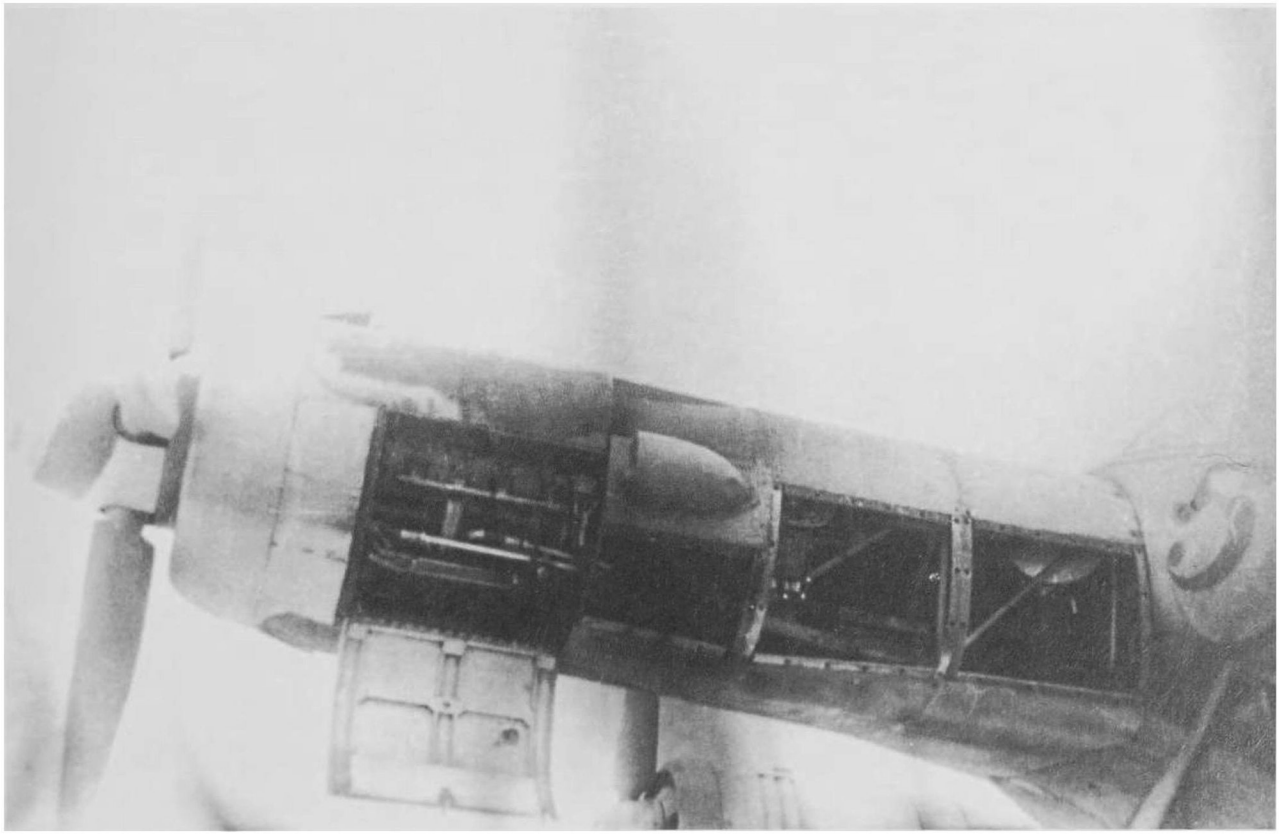
This photo of an AEROFLOT Ju 52/3m was taken in Ashkhabad in 1947. The aircraft wears the civil registration SSSR L-64. The Ju 52/3m was used to transport sulfates from a Central-Asian mine.

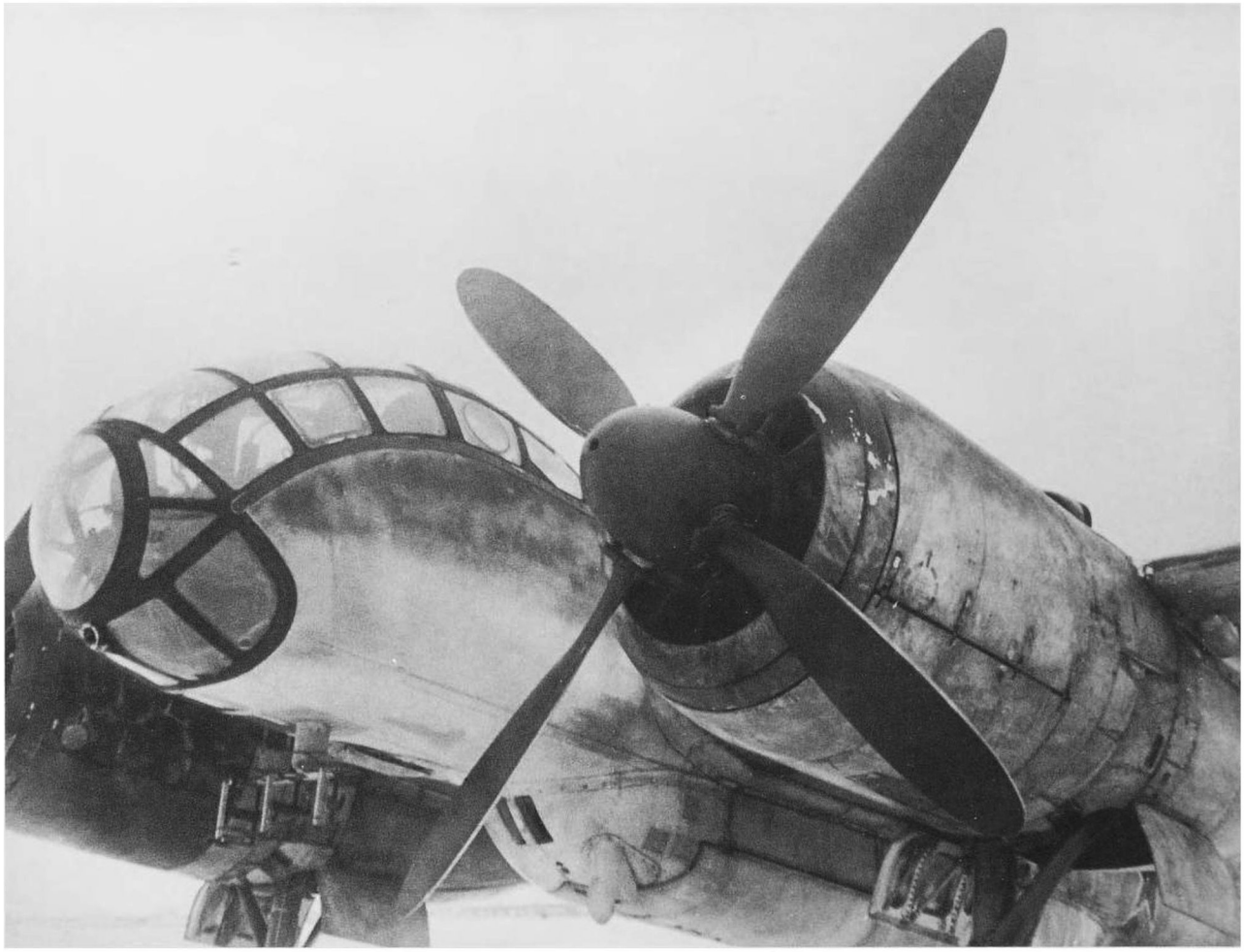
Aviation historians have been debating over this oddity for years. It has been suggested that it was most likely a heavily-modified Junkers Ju 252 used as a flying test-bed for the Junkers JUMO 222 engine. The aircraft sat idle after development of the piston engine was abandoned and it fell into Soviet hands intact. As the Soviets showed great interest in the Ju 288, a continuation of trails in the Soviet Union would have been logical.



Although of poor quality, the photos on this page provide interesting details of the machine illustrated on the previous page. The photograph above is one of a set made for the purpose of documenting and describing the cockpit stations.

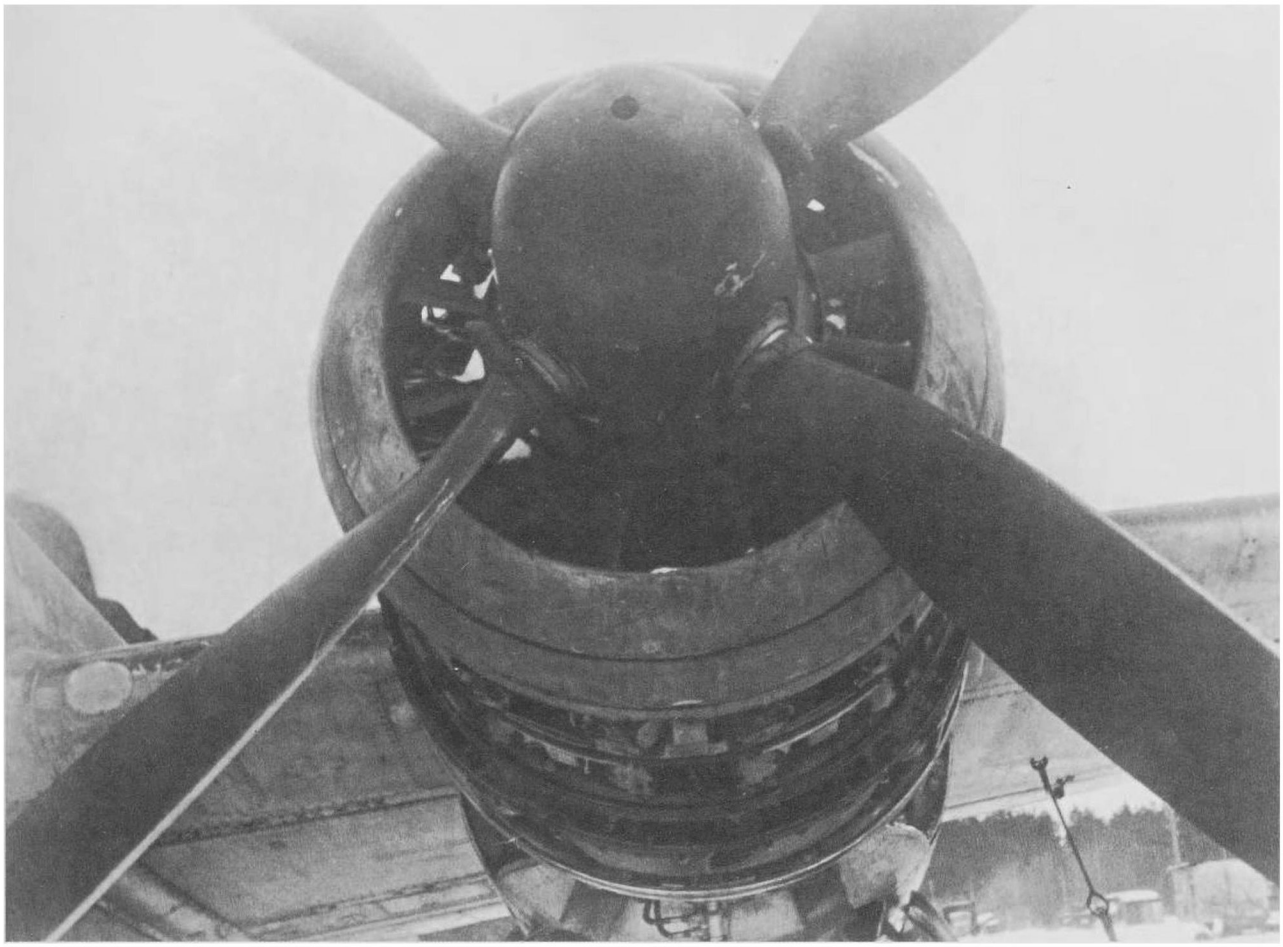
The photograph at the bottom of the page shows interesting details of what is believed to be the JUMO 222 engine, which was also installed in the Ju 288. The very long fuselage nose made it necessary to extend the aft fuselage for cg reasons.



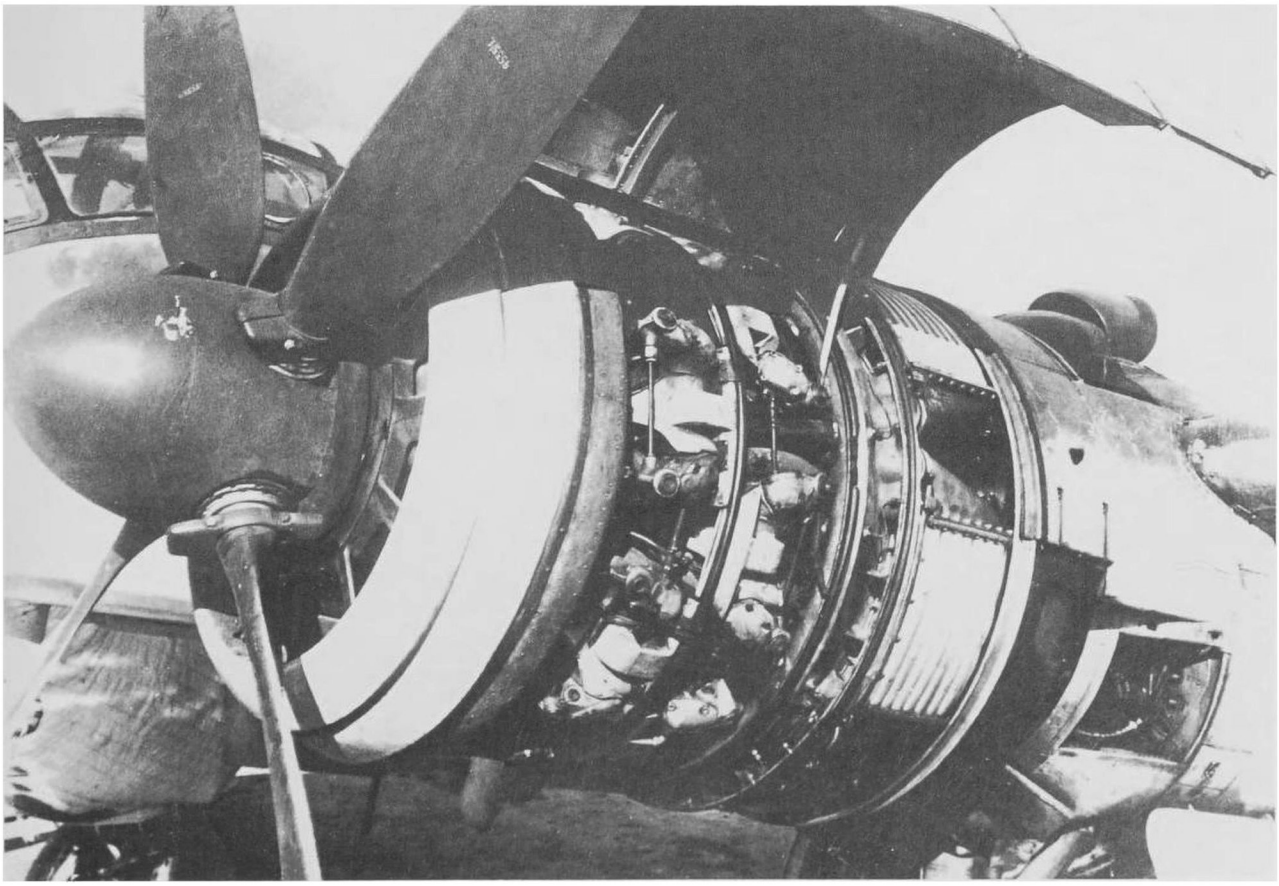


The photographs on this and the following page can only be described as sensational as they are the first high-quality illustrations to depict the Junkers Ju 388 L-1, which underwent extensive trials in Soviet hands. Visible in the photo above is the Waffentropfen WT 81Z with two rearward firing MG 81 machine-guns. Note the unusual antenna under the fuselage nose.

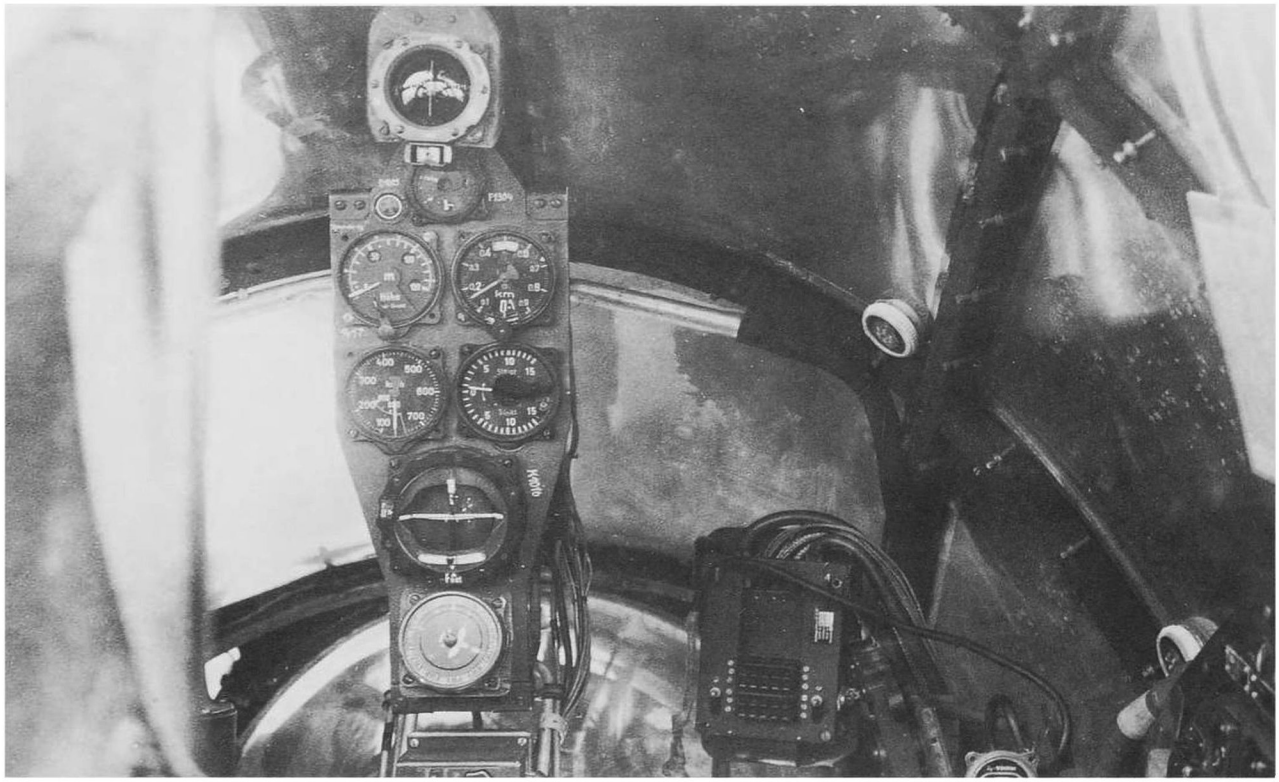
Rear view showing the badly-worn finish, still with wing crosses. The purpose of the antennas on the wing upper surfaces is not known. Note the PVE 11 periscopic sight on the canopy.



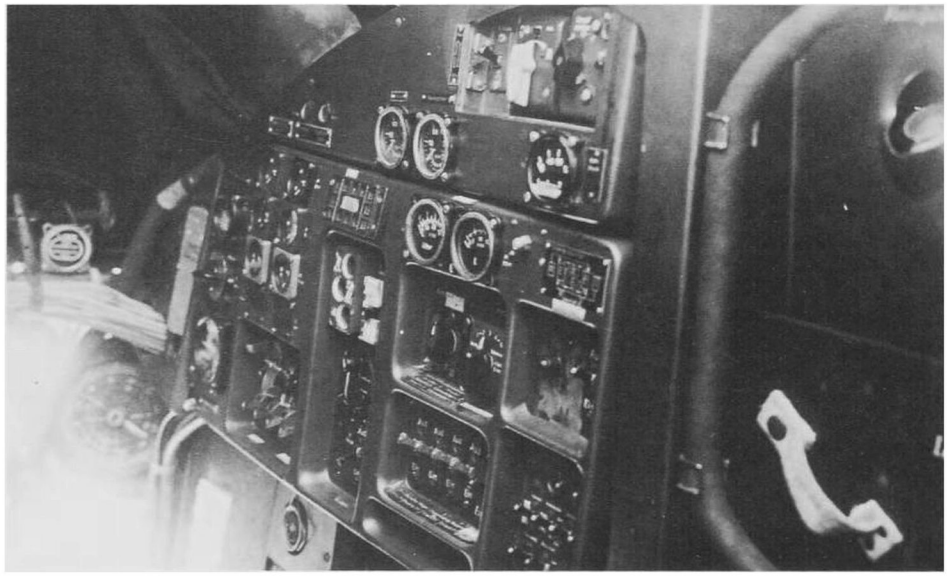
The power plant of the Ju 388 L-1, the BMW 801 TJ with four-blade VDM propeller.



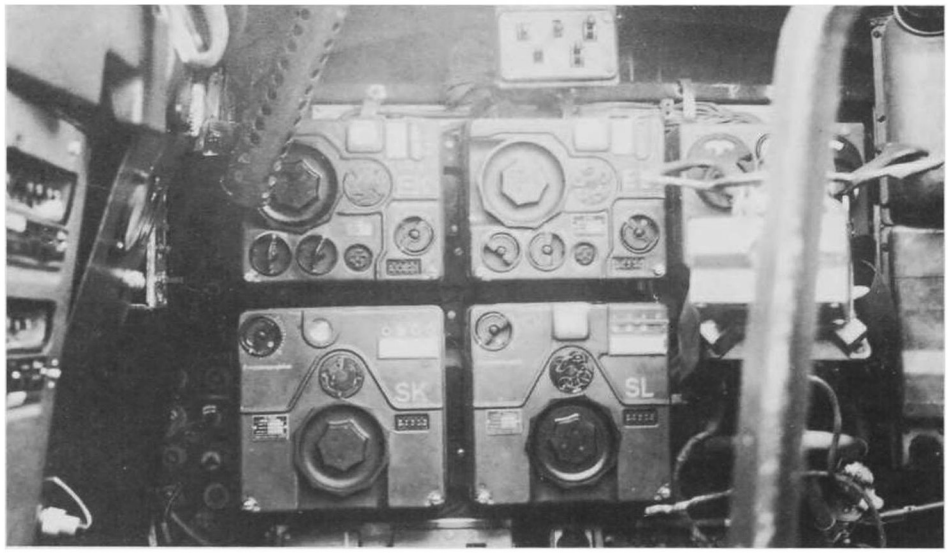
Opened access panels provide a good view of the BMW 801 TJ engine. Note the propeller balance weights outside the spinner.



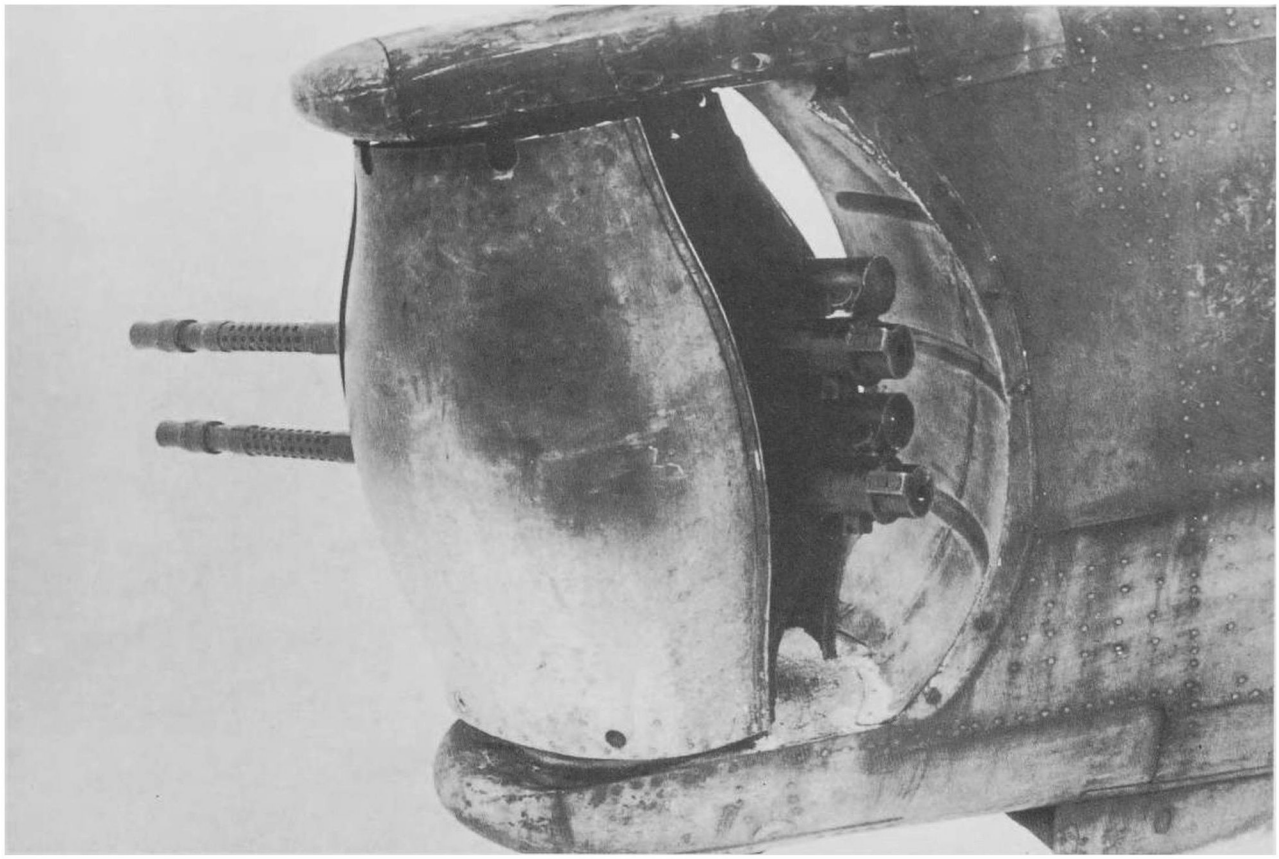
Cockpit interior of the Junkers Ju 388 L-1 with main instrument panel. The pilot must have had an excellent view from the cockpit.



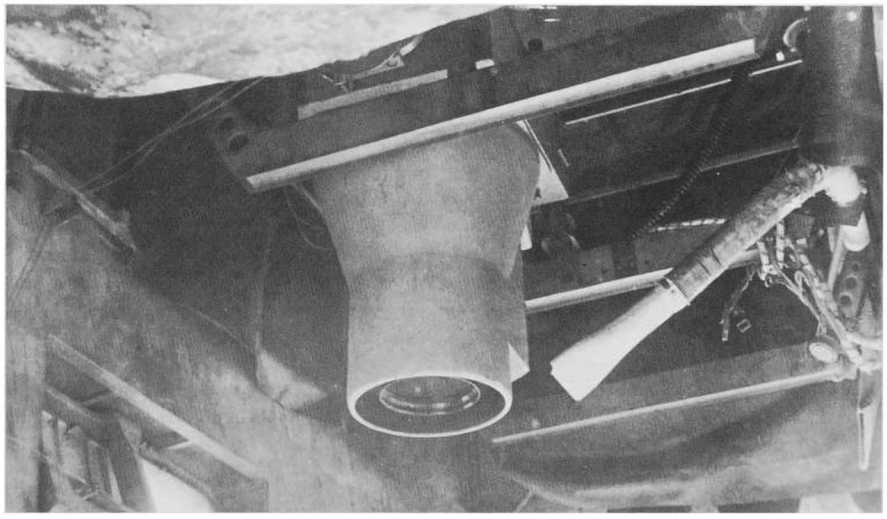
(Right) Flight engineer's station.



(Right) Radio equipment of the Junkers Ju 388 L-1.



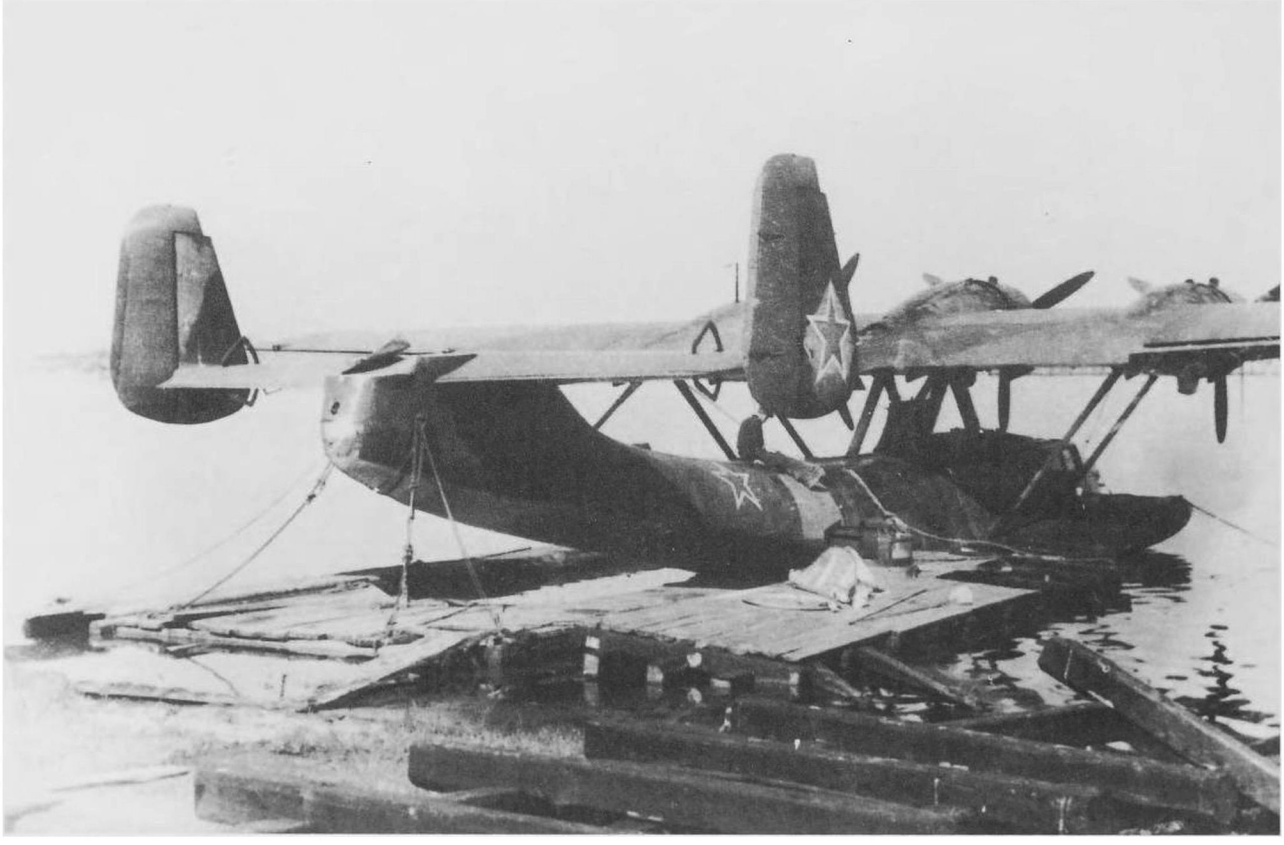
(Above) The Junkers Ju 388 L-1's defensive armament consisted of a remotely-controlled FA 15 turret with MG 131 Z machine-guns. The turret was controlled from the cockpit using a periscopic sight.



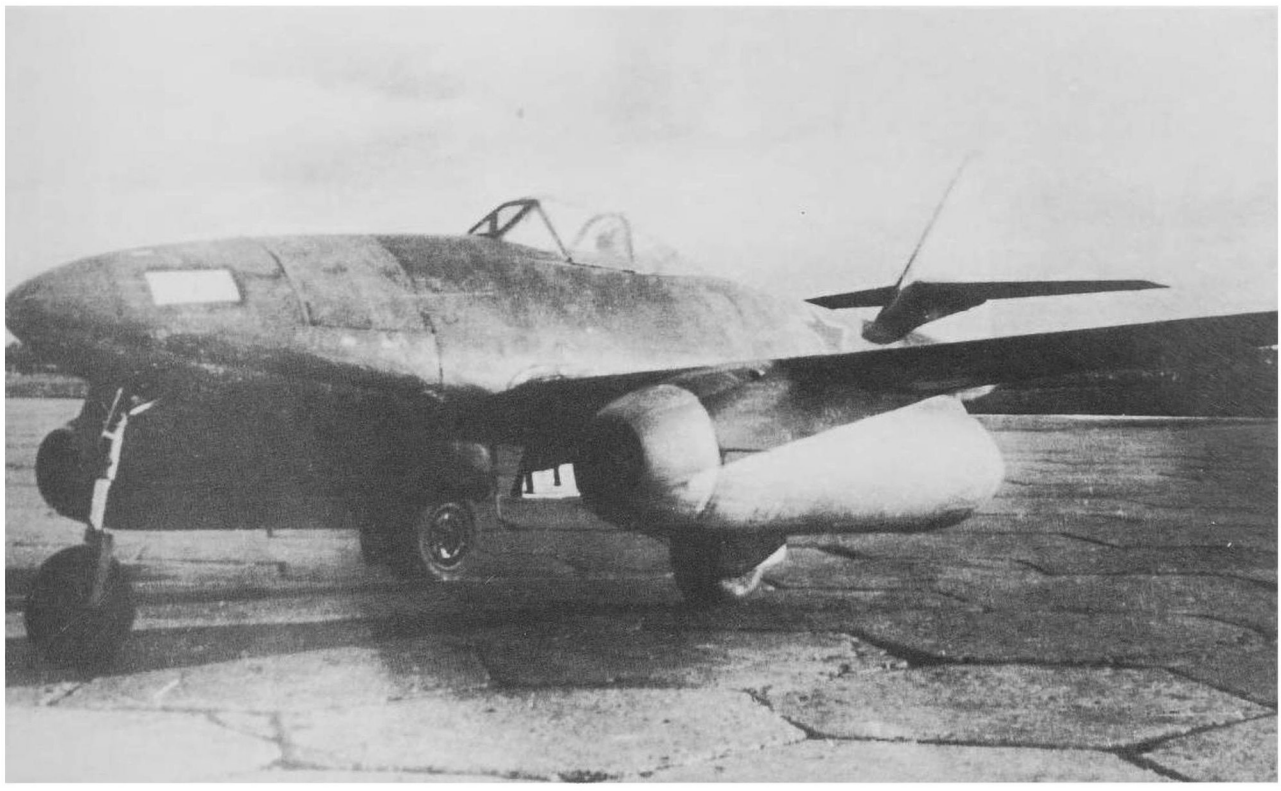
(Right) Close-up of the reconnaissance camera. Warm air was blown onto the lens to prevent fogging. The entire camera could be turned to face the side camera port. Note the half-open camera port.

(Right) Close-up of the PVE 11 periscopic sight of the Junkers Ju 388 L-1 on top of the fuselage, directly behind the cockpit.

Bücker Bü 181 Bestmann wearing the tactical number "2" on the fuselage behind the red star at the N II GVF civil aviation test center. In the background is a Lisunov Li-2 (license-built version of the DC-3) and a Junkers Ju 34 hau.



Dornier Do 24 T flying boat, photographed in Igarka in 1947. The aircraft was transferred from Sweden to the USSR on 14 August 1945 and remained in service for years. It is likely that the aircraft had previously served with Seenotstaffel 50 and bore the code 5W+BU (W.Nr. 42).



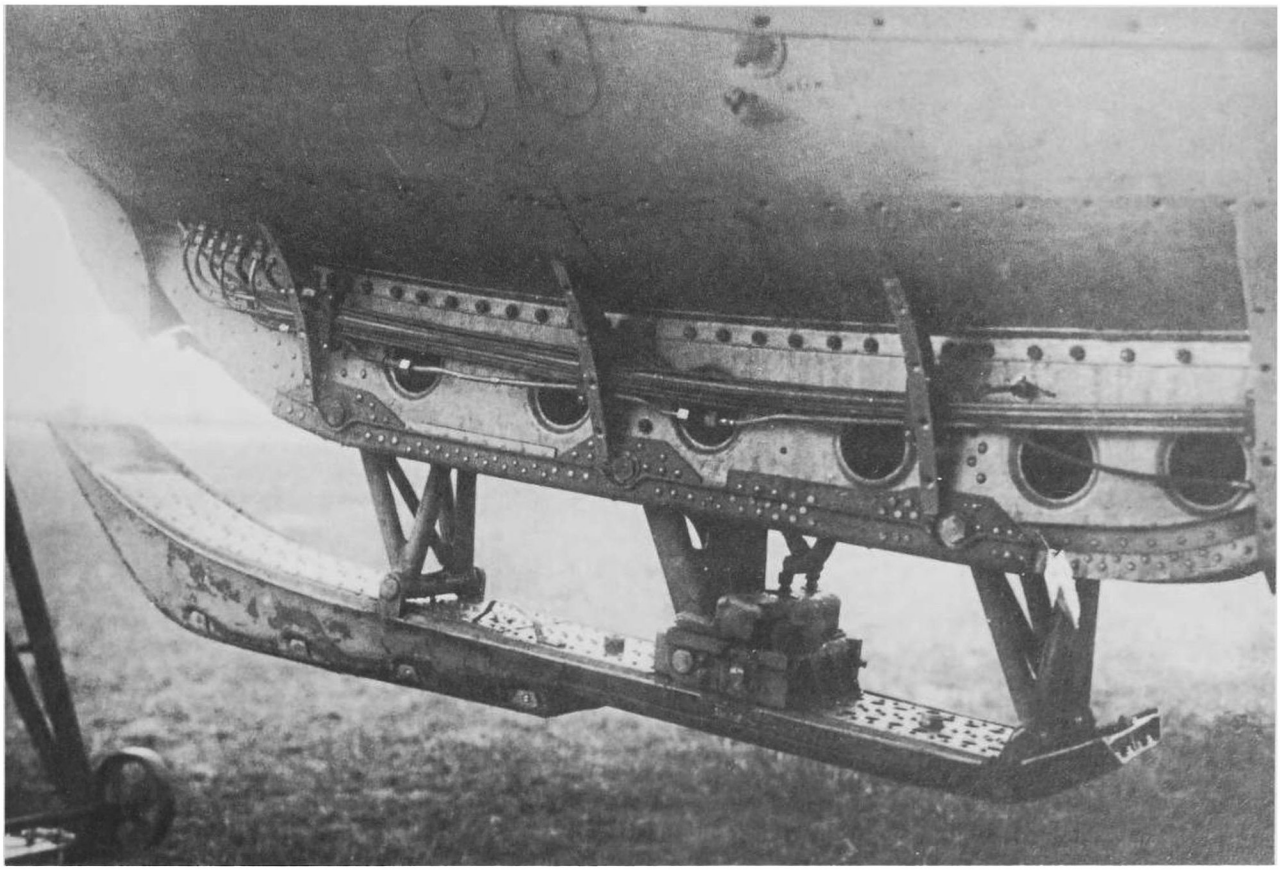
The Soviets were also very interested in German jet aircraft development. Every machine they could lay their hands on was extensively tested. Here a Messerschmitt Me 262 A-1 is seen at the NII VVS test center. The Messerschmitt jets were studied thoroughly in countless flights and much experience was gained which proved useful in jet aircraft development in the USSR. Serious consideration was given to producing the aircraft in quantity, however it was argued that this might stifle the development of Soviet jet fighters and the idea was abandoned.

Another Me 262 A-1 at the NII VVS test center. Like the machine above, this aircraft's guns have been removed and the gun ports covered with metal plates. The photograph was taken in 1945. The first flight of an Me 262 in Soviet hands was made by A.G. Kochetkov on 15 August 1945.

Side view of the Messerschmitt Me 262 A-1 illustrated on the previous page.

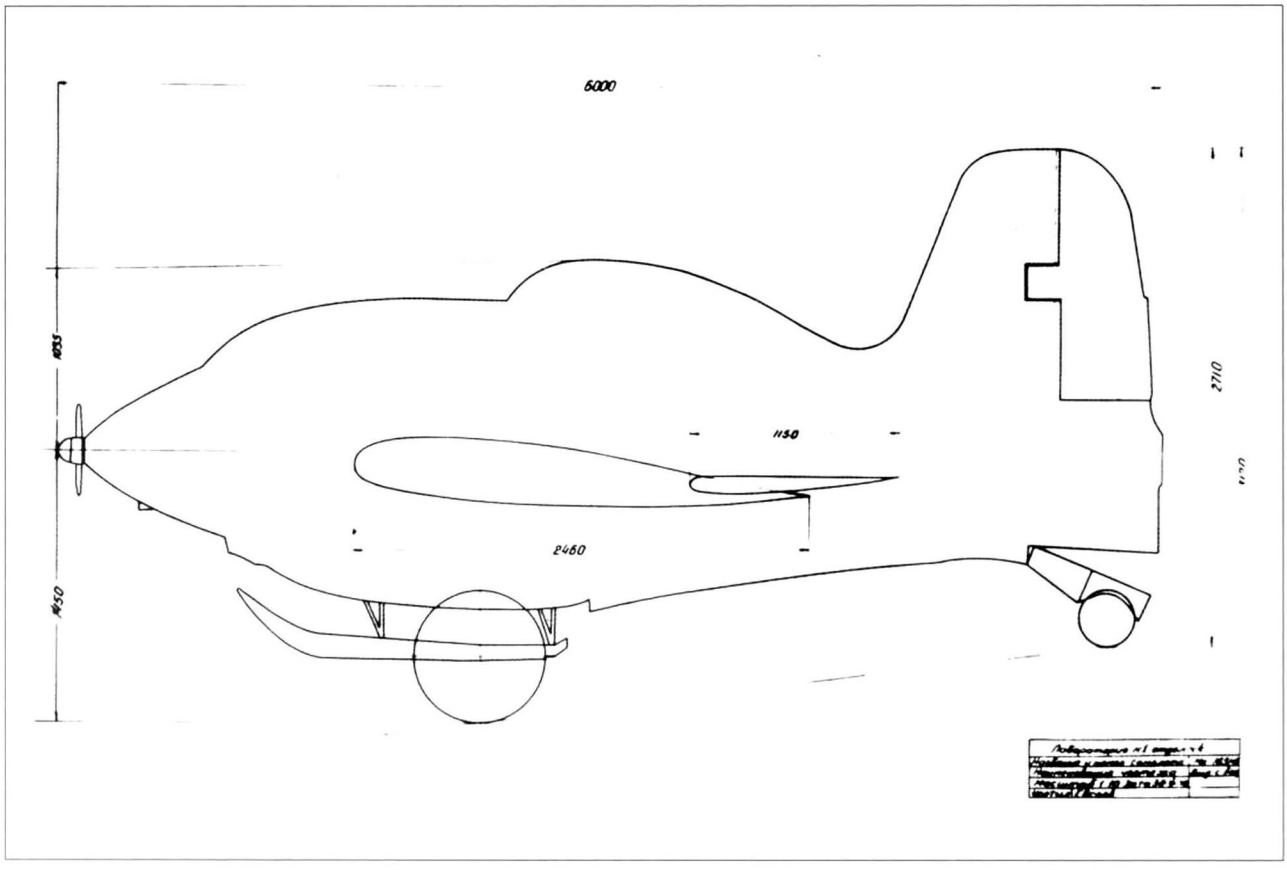
Unfortunately nothing is known about this Me 262 except that it fell into Soviet hands. The German markings have been removed, but Soviet insignia have yet to be applied.

The Soviets were also extremely interested in German advances in the field of rocket propulsion. Several Messerschmitt Me 163 B and S machines were captured and tested extensively by the NII VVS and L II test facilities. Due to the lack of special rocket fuels, the initial flights were all unpowered, with the aircraft towed by a Tu-4 (Russian-built copy of the Boeing B-29).

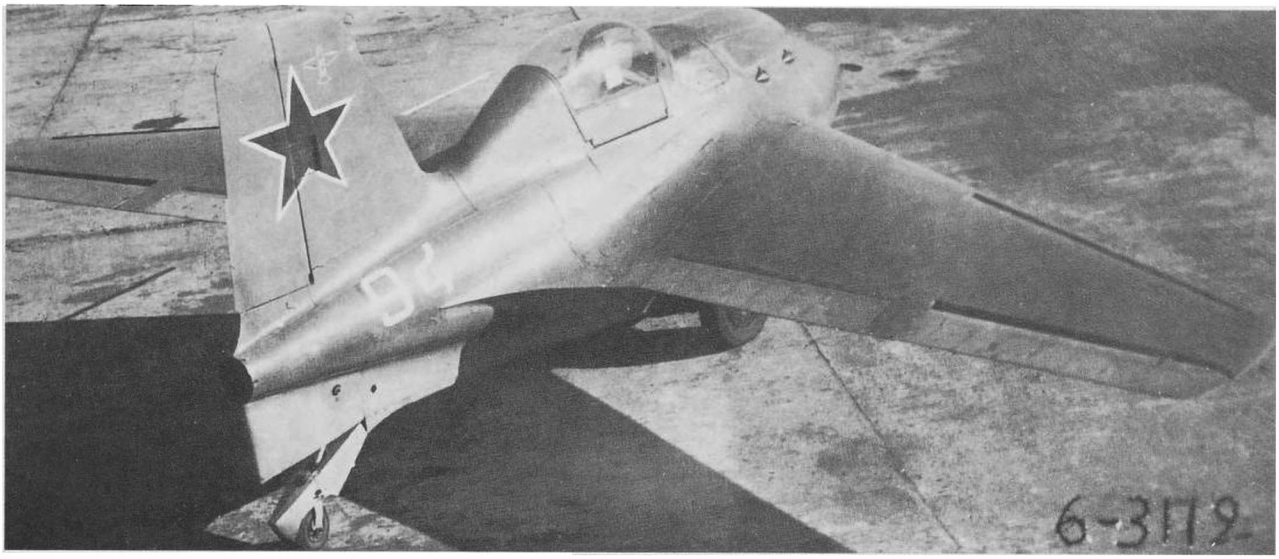


Close-up view of the extended skid of a Me 163 B. The fairing on the underside of the fuselage has been removed, revealing the piping beneath.

This Me 163 was flight tested by NII VVS test pilot Vladimir P. Golofastov.

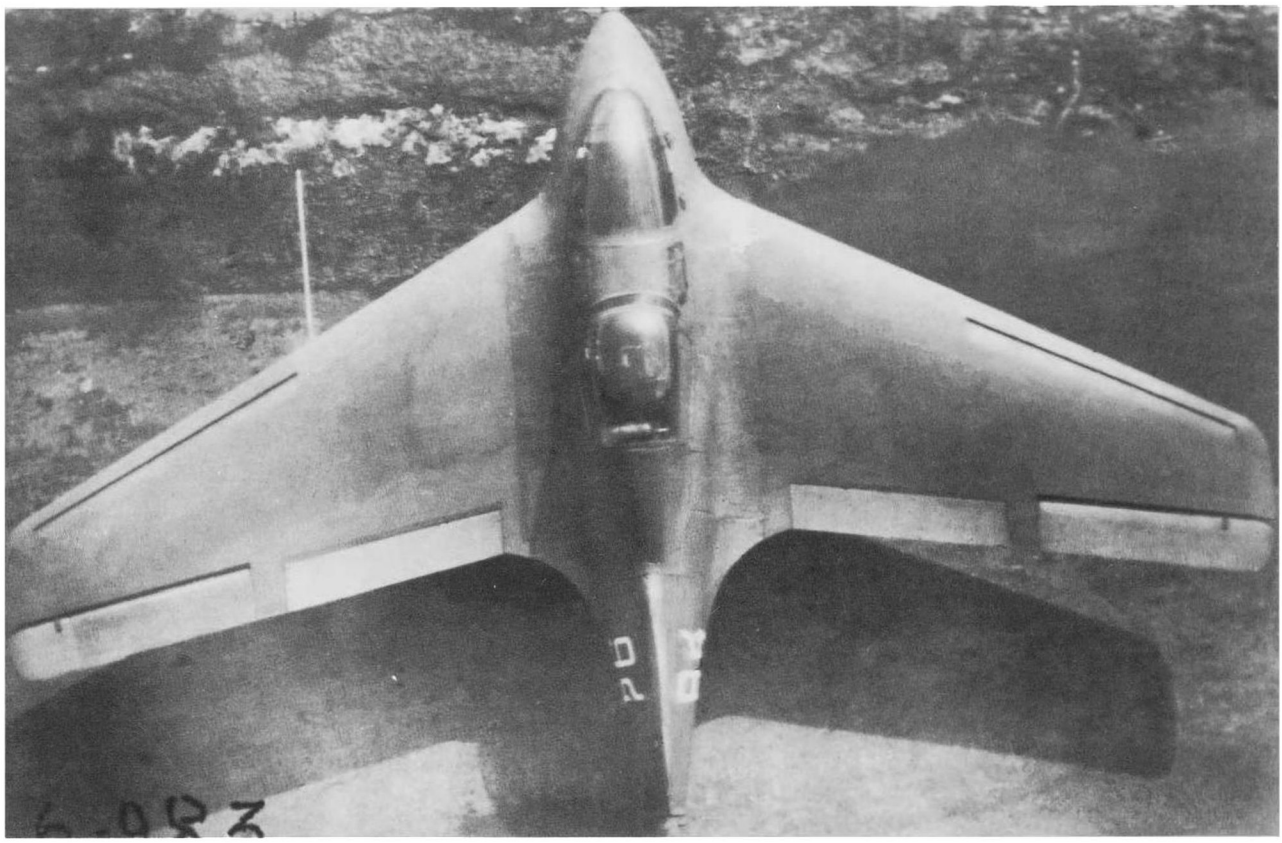


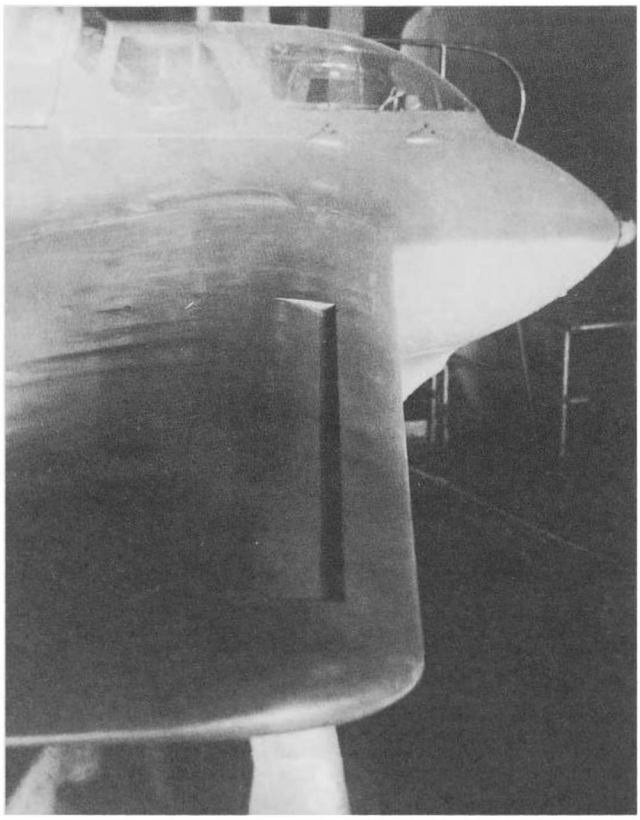
Scale drawing of the Me 163 S, note the Russian script in the bottom right corner.

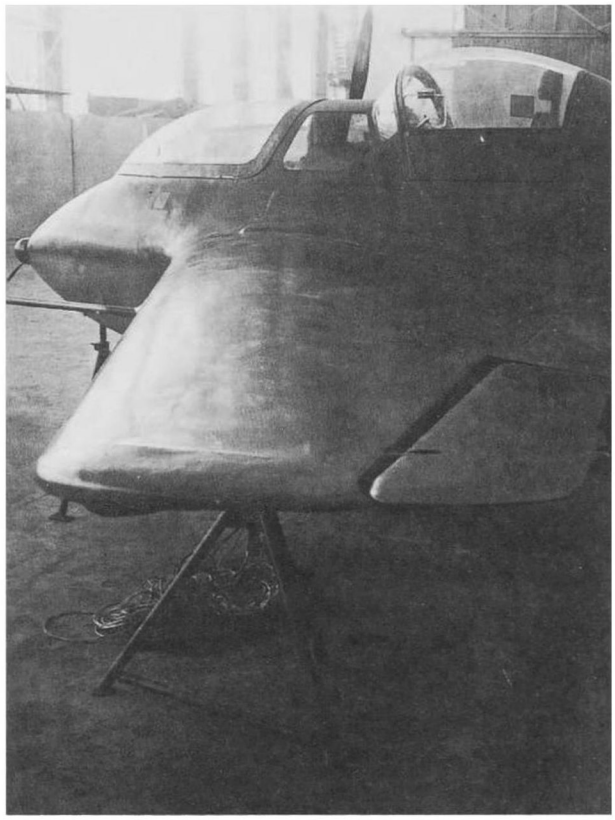


The photographs on this and the following page come from the L II test center and were intended to illustrate the general design characteristics of the Me 163 S, the two-seat training version of the rocket fighter. The high quality of the photographs allow many details of the aircraft to be seen. This aircraft, number "94", was the only example of the two-seat trainer captured by the Soviets. After numerous studies and wind tunnel tests, this aircraft was also test flown (unpowered). A camera was attached to a mast behind the cockpit to record the tests.

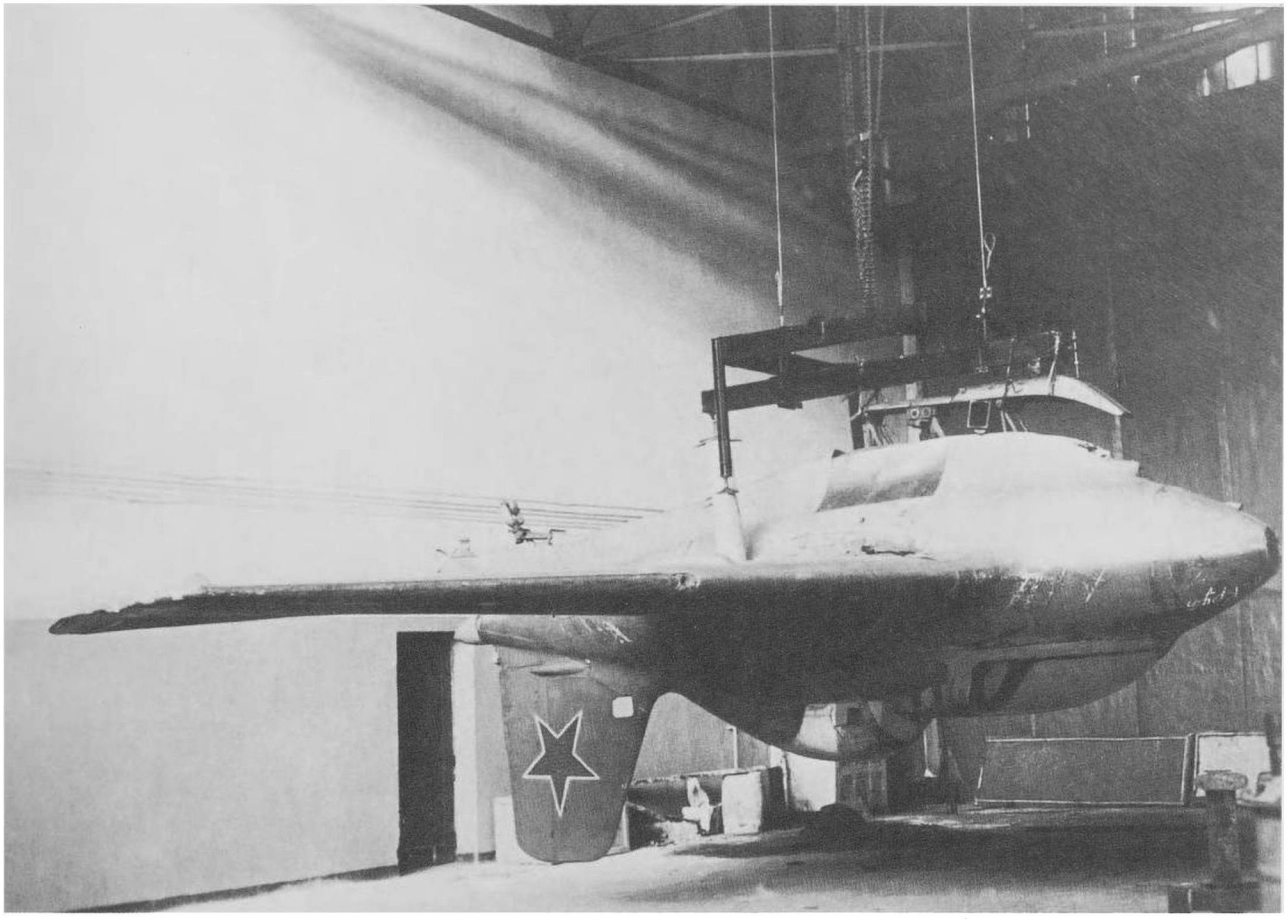
The two photographs at the bottom of the page were taken in the winter of 1946.



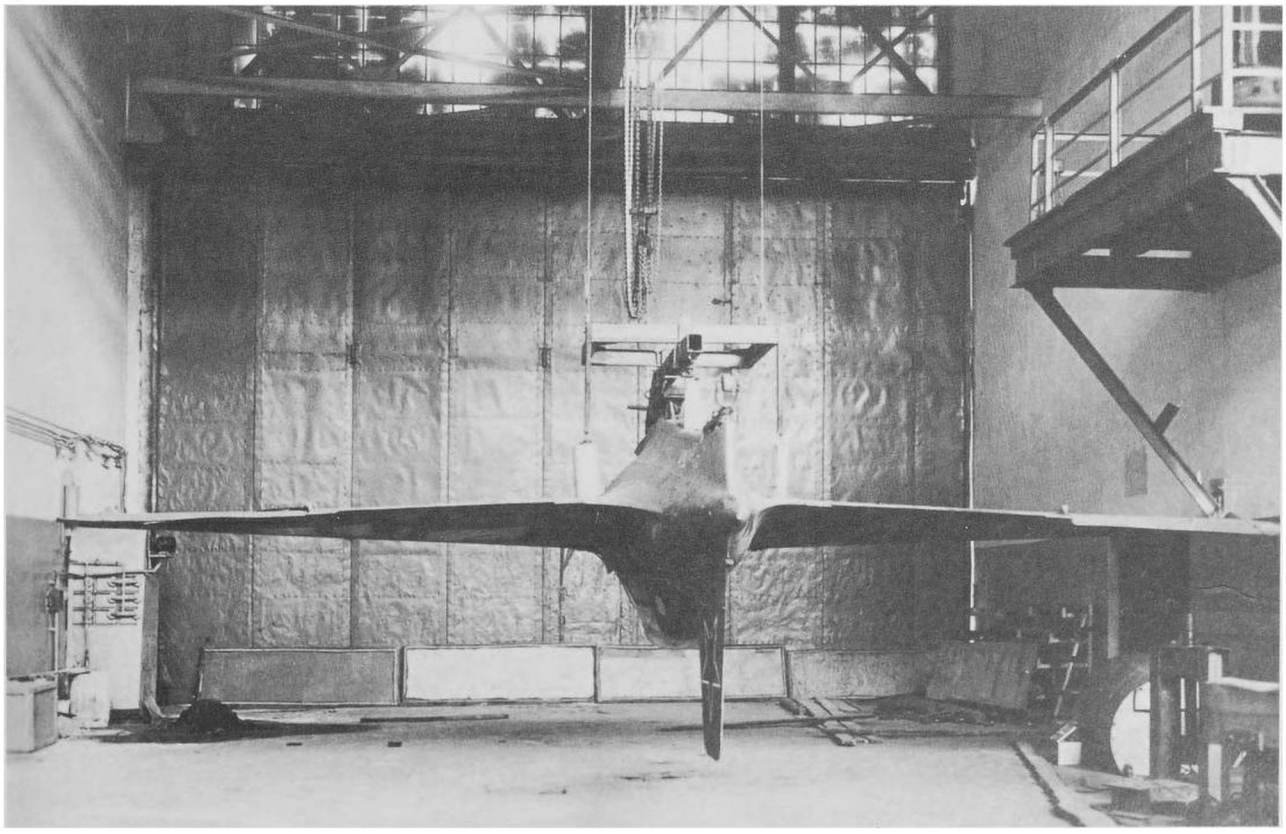


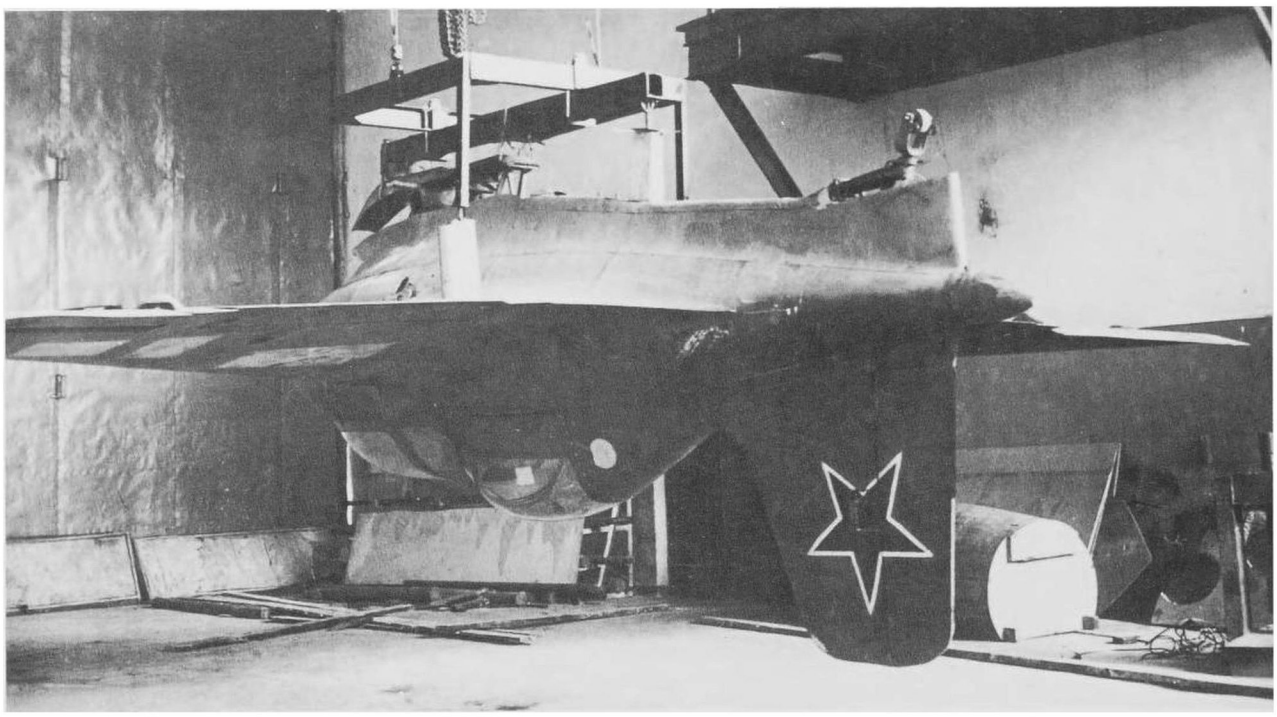


These photographs illustrate the arrangement of the Me 163's control surfaces, landing flaps and leading edge slots.

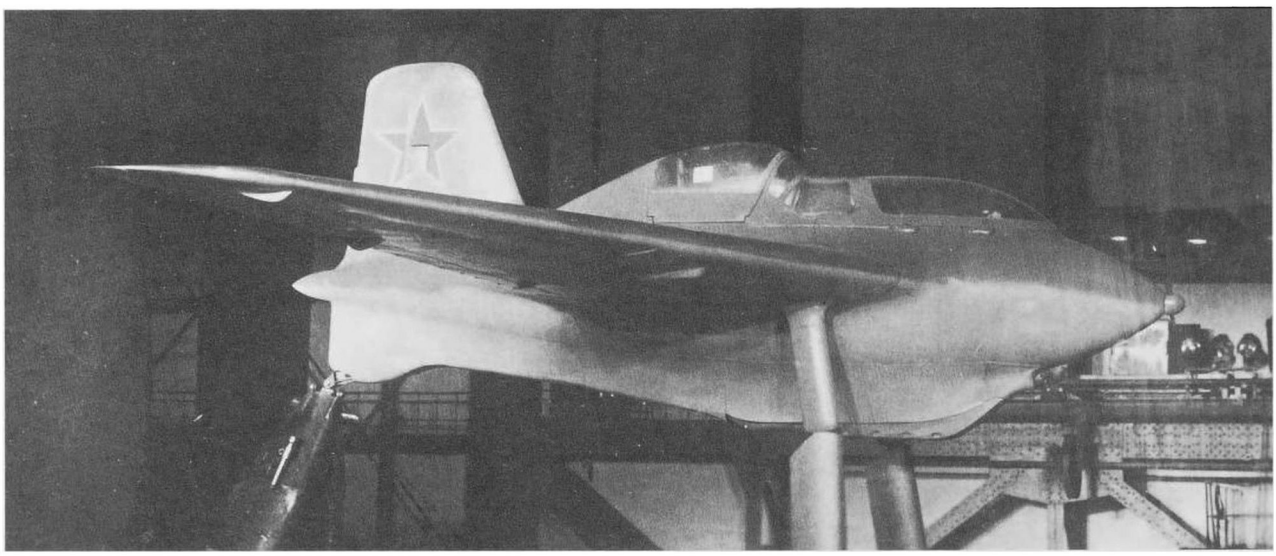


In preparation for wind tunnel tests a device was developed which made it possible to suspend the aircraft in an inverted position.





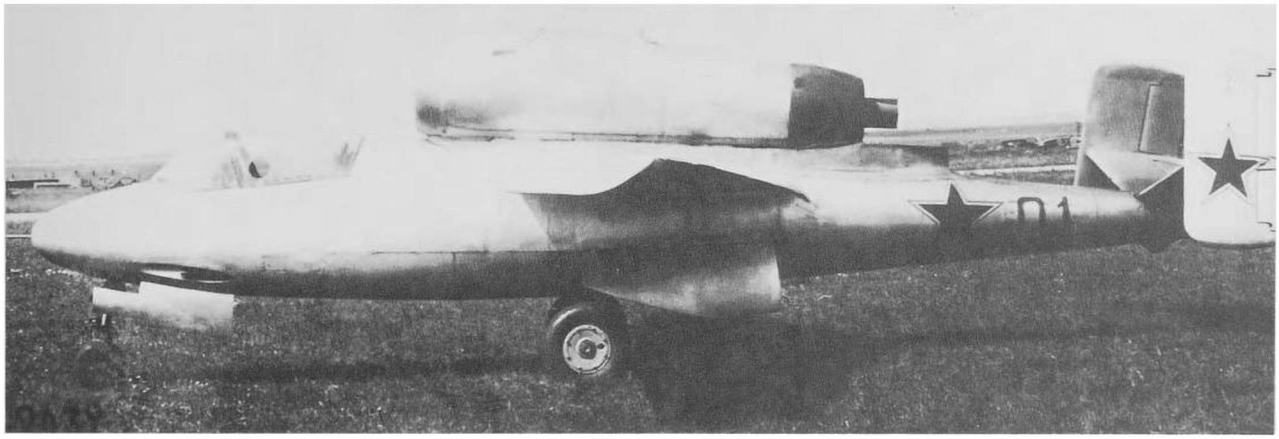
Rear view of the suspended Me 163 S.



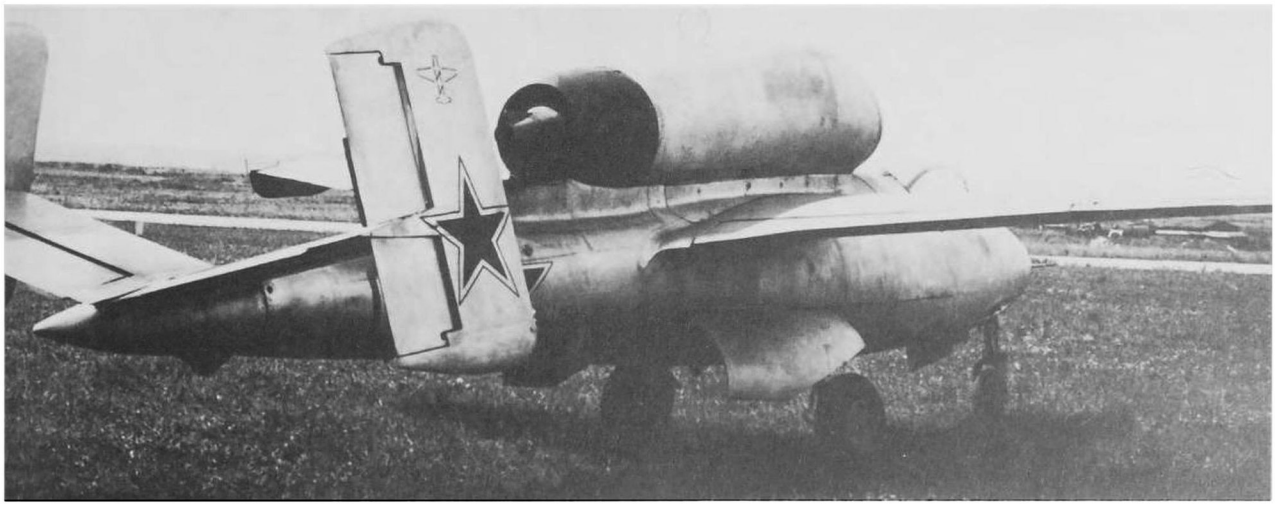
Wind tunnel test in horizontal flight.

The only known photograph of the Messerschmitt Me 163 S in flight.

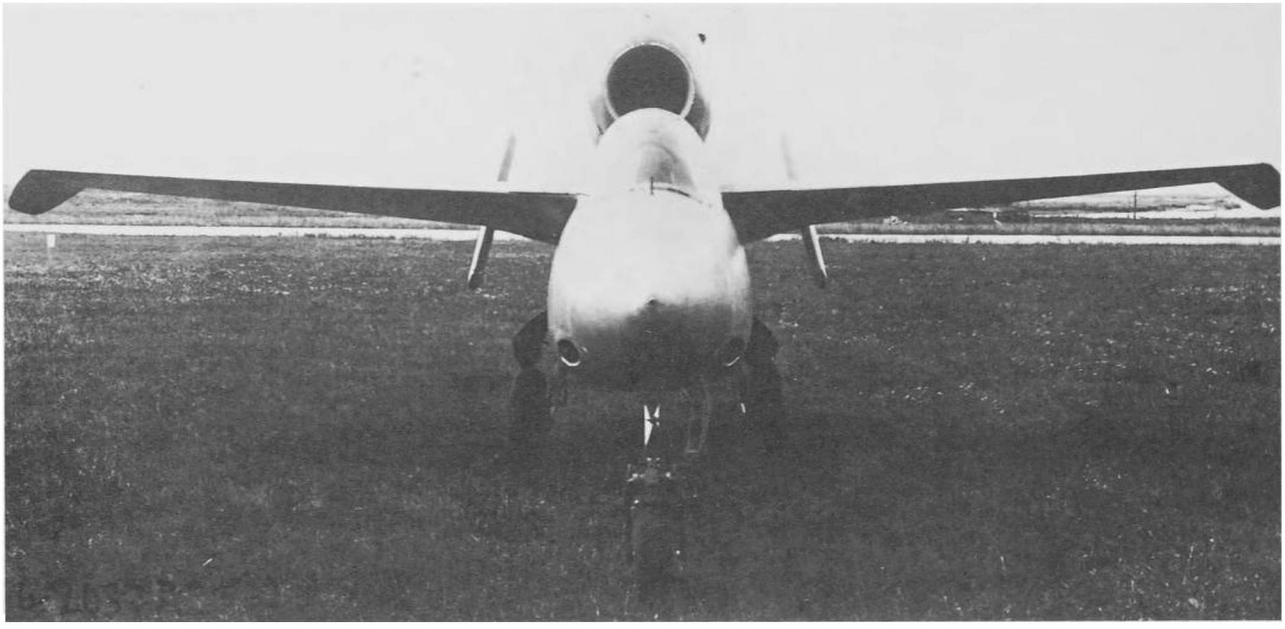
At least two examples of the He 162 Volksjäger were tested by the NII VVS and L II test stations.



The following series of photographs depict aircraft "01" and "02."

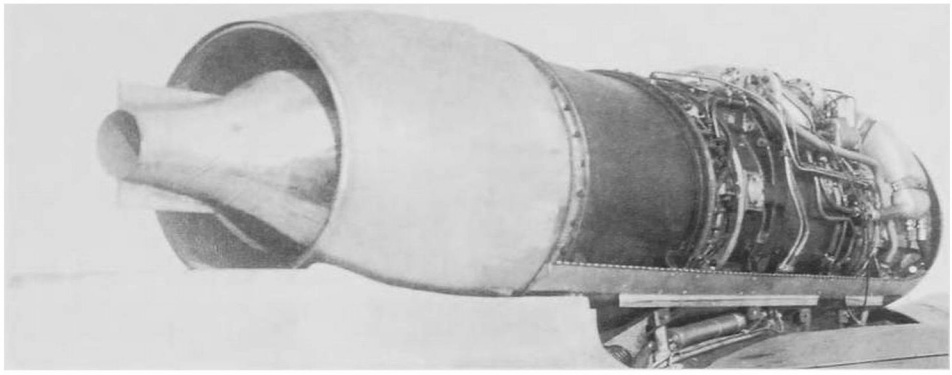


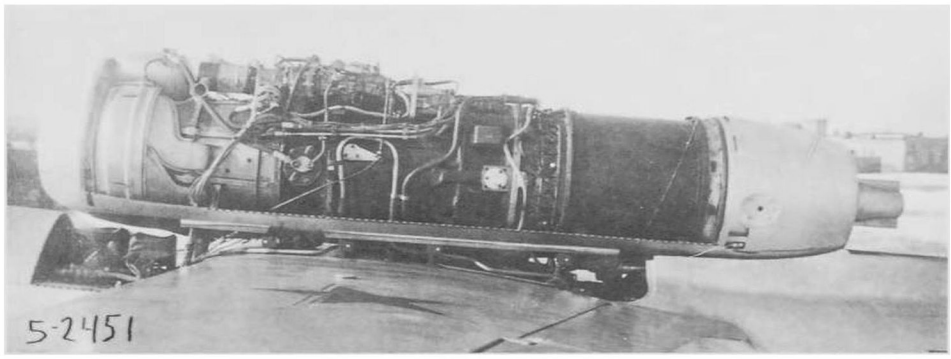
The emblem on the fin of the He 162 is that of the L II test center.



Front and rear views of the He 162, which has been stripped to natural metal, reveal the classic lines of this elegant aircraft. Development of the type was not seriously pursued, so as not to impeded the development of Russian-designed types and possibly for political reasons.

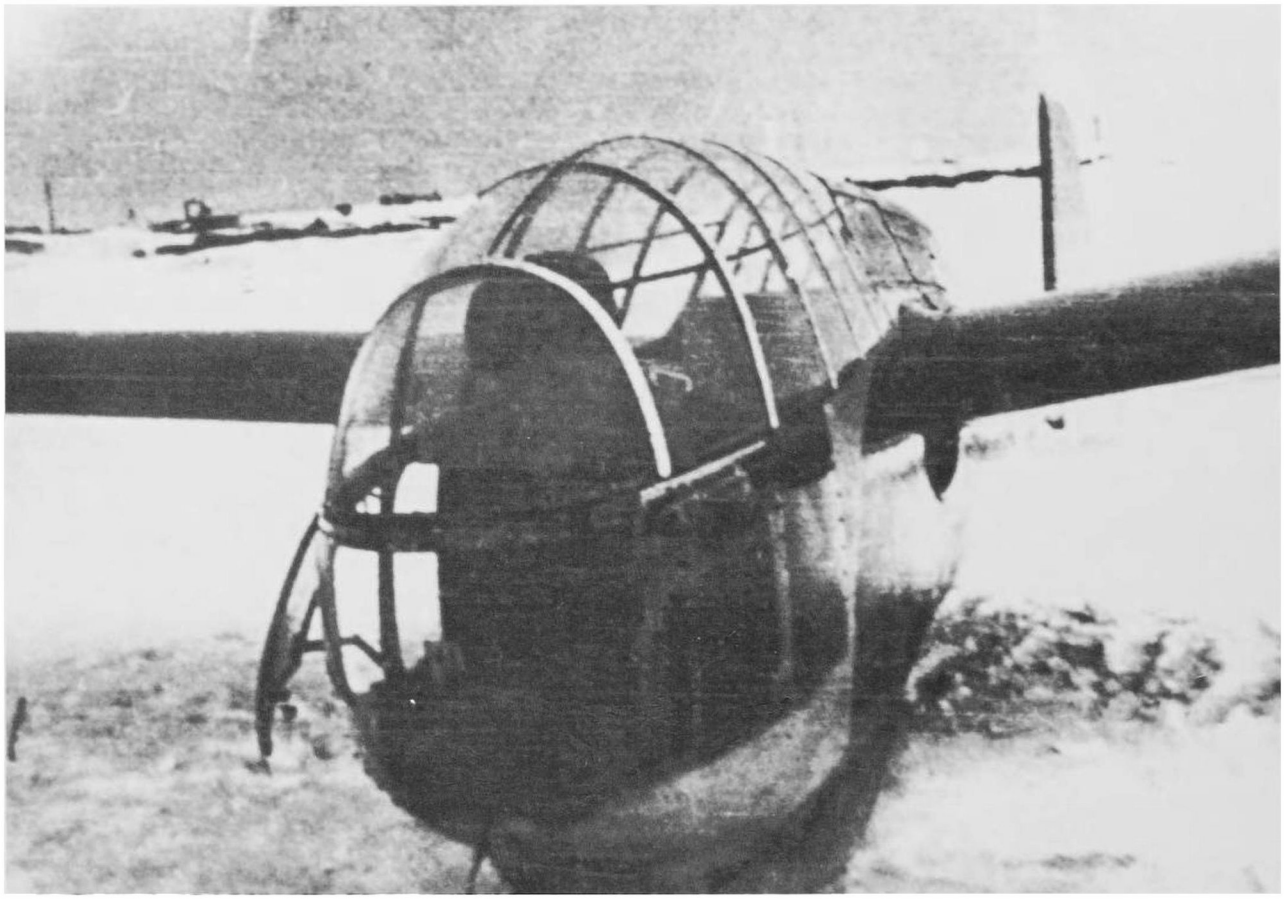
(Above) This partly stripped He 162 was photograph in an L II hangar. It is possible that the aircraft was in this state for structural examination. In the background is a Me 262.



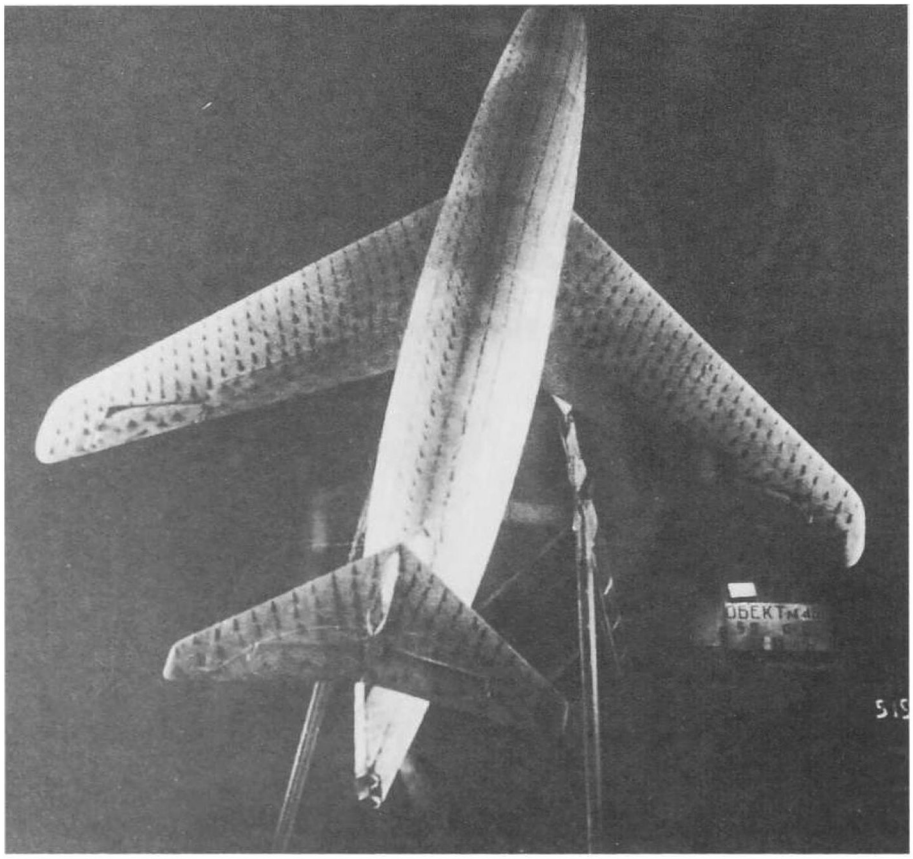


(Right) Side and rear views of the BMW 003 turbojet engine.

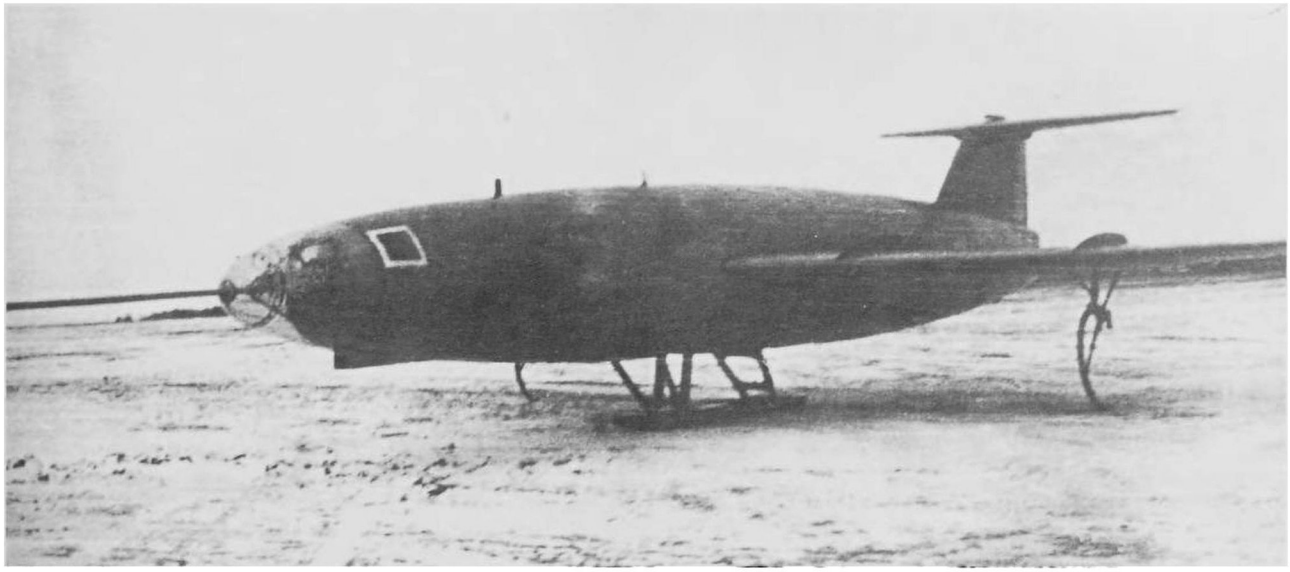
(Right, below) The Heinkel He 162 with the tactical number "2" was also tested by the L II test center.



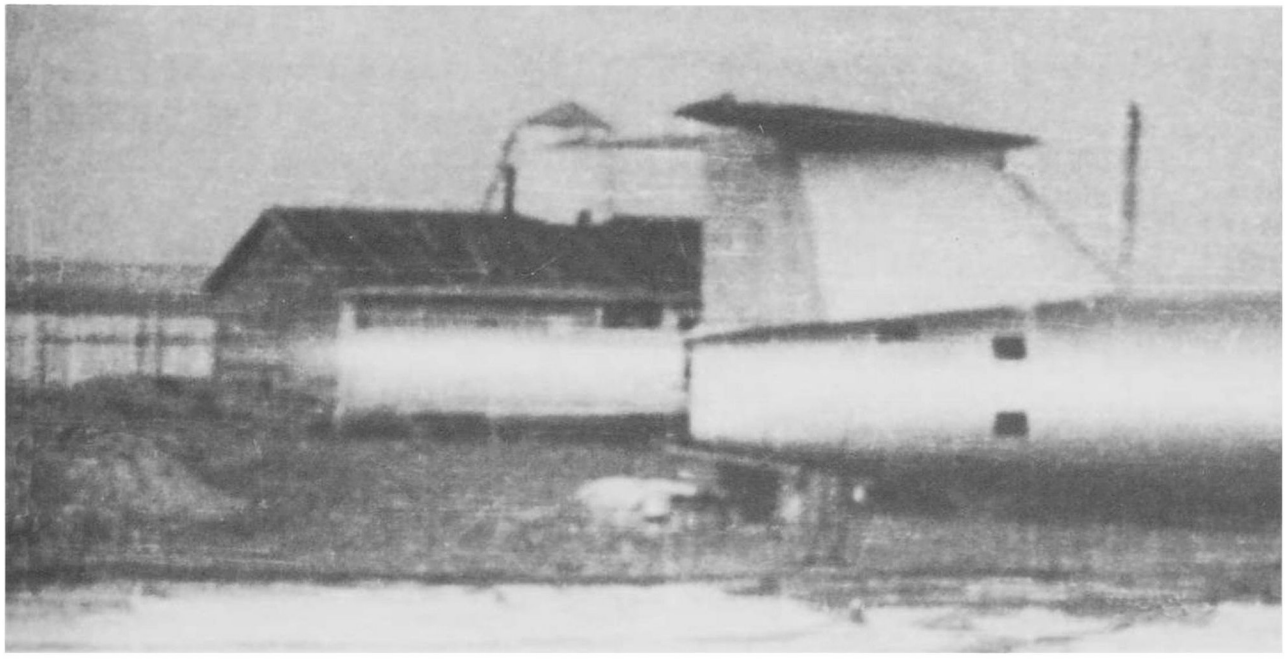
One of the most ambitious projects undertaken by the Soviet aviation industry was breaking through the so-called "sound barrier". It is hard to believe that the effort began with this Kranich sailplane, a German design. It was used for tests with the pilot in a prone position. The DFS 346 (see photos below and on following page) was designed with this type of cockpit to reduce drag.



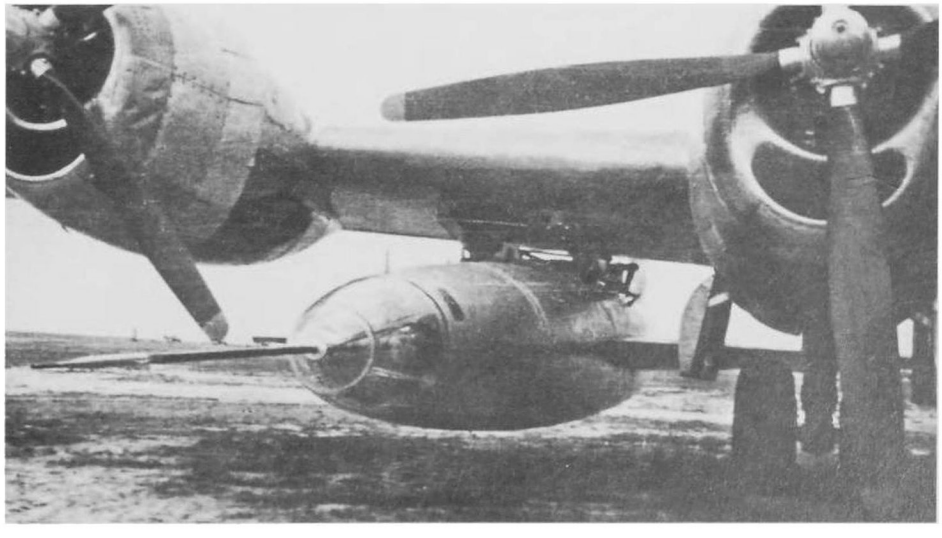
The first wind tunnel model of the DFS 346 during testing in the T-101 wind tunnel. Just visible in the lower right corner of the photograph is a label bearing the title: "Object No. 46, 12 December 1946."



The DFS 346 was a high-speed research aircraft designed in Germany and completed in the Soviet Union after the end of the war. It was used in attempts to achieve supersonic speeds.

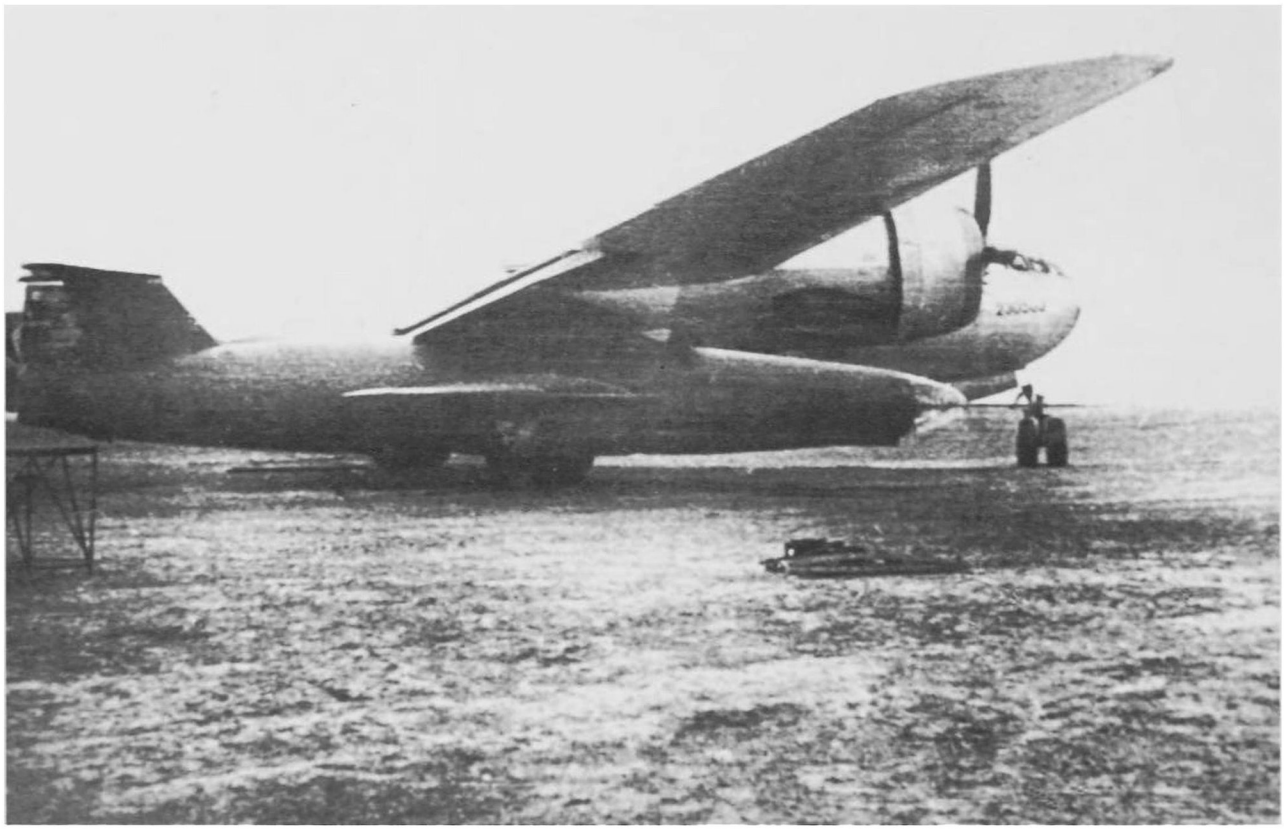


Test run of the aircraft's rocket motor, which was based on the German Walther rocket motor.



The DFS 346 first took to the air beneath the wing of a Boeing B-29. The carrier aircraft was not a Tu-4 as is often claimed, but one of the handful of American-built B-29s which fell into Soviet hands.

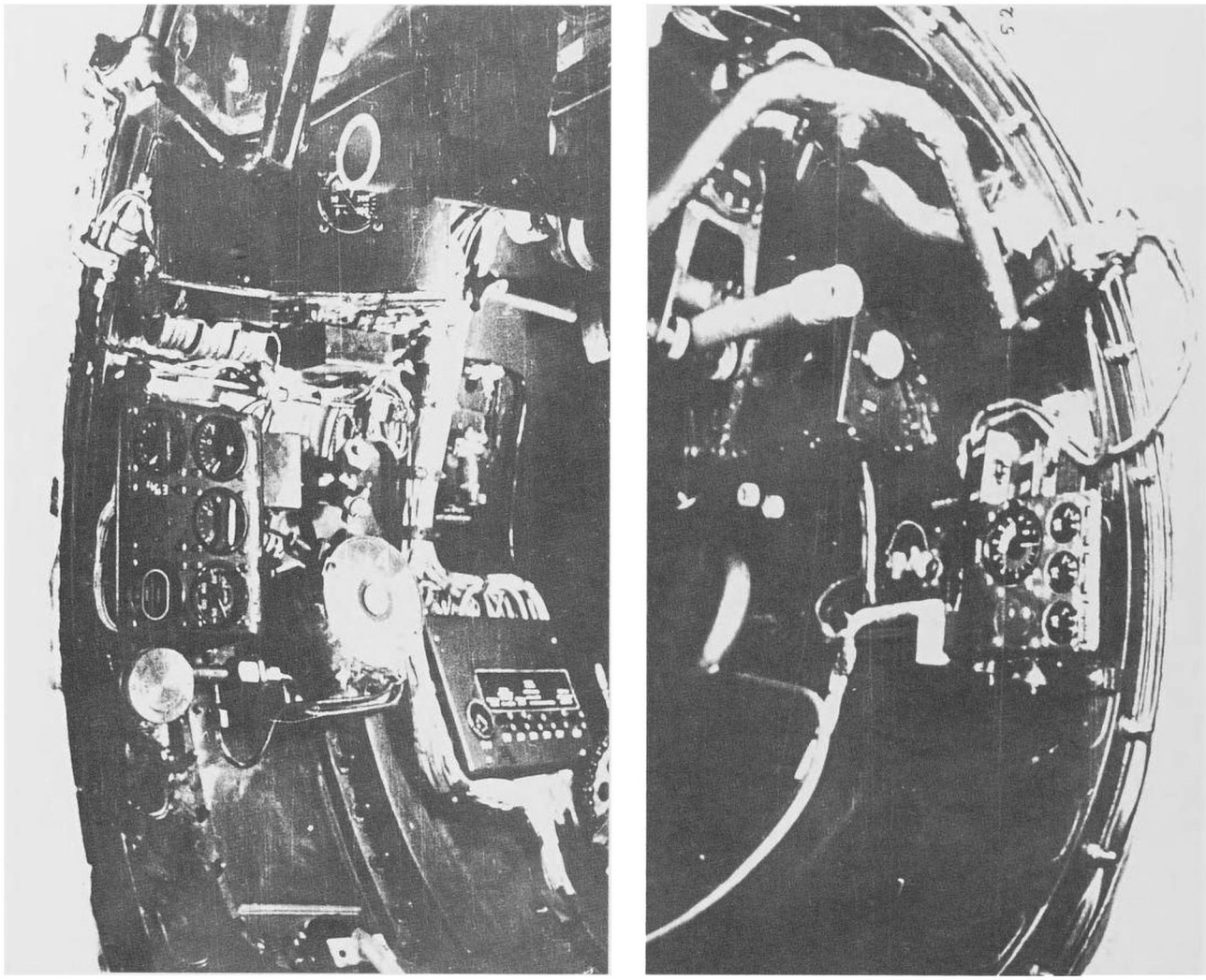
The DFS 346 beneath the wing of a B-29. The B-29s were obtained by the Soviets after they made emergency landings in Siberia following bombing raids against Japan.
At the time of this tethered test flight the DFS 346 had been fitted with a Walther HWK-109-509 rocket motor. The research aircraft was designed to reach speeds of Mach 1.5 to Mach 2.

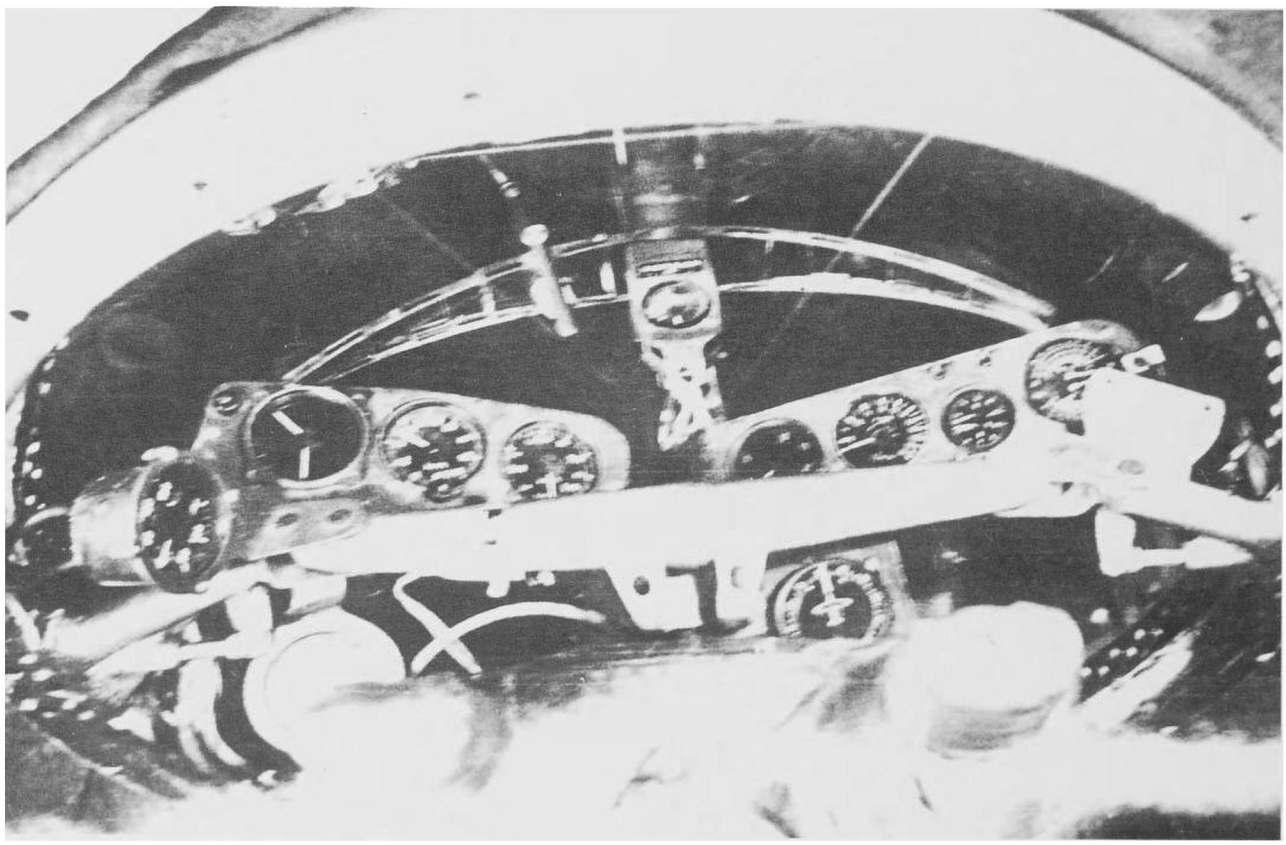


The B-29 taxis out for takeoff. The considerable size of the DFS 346 is apparent.

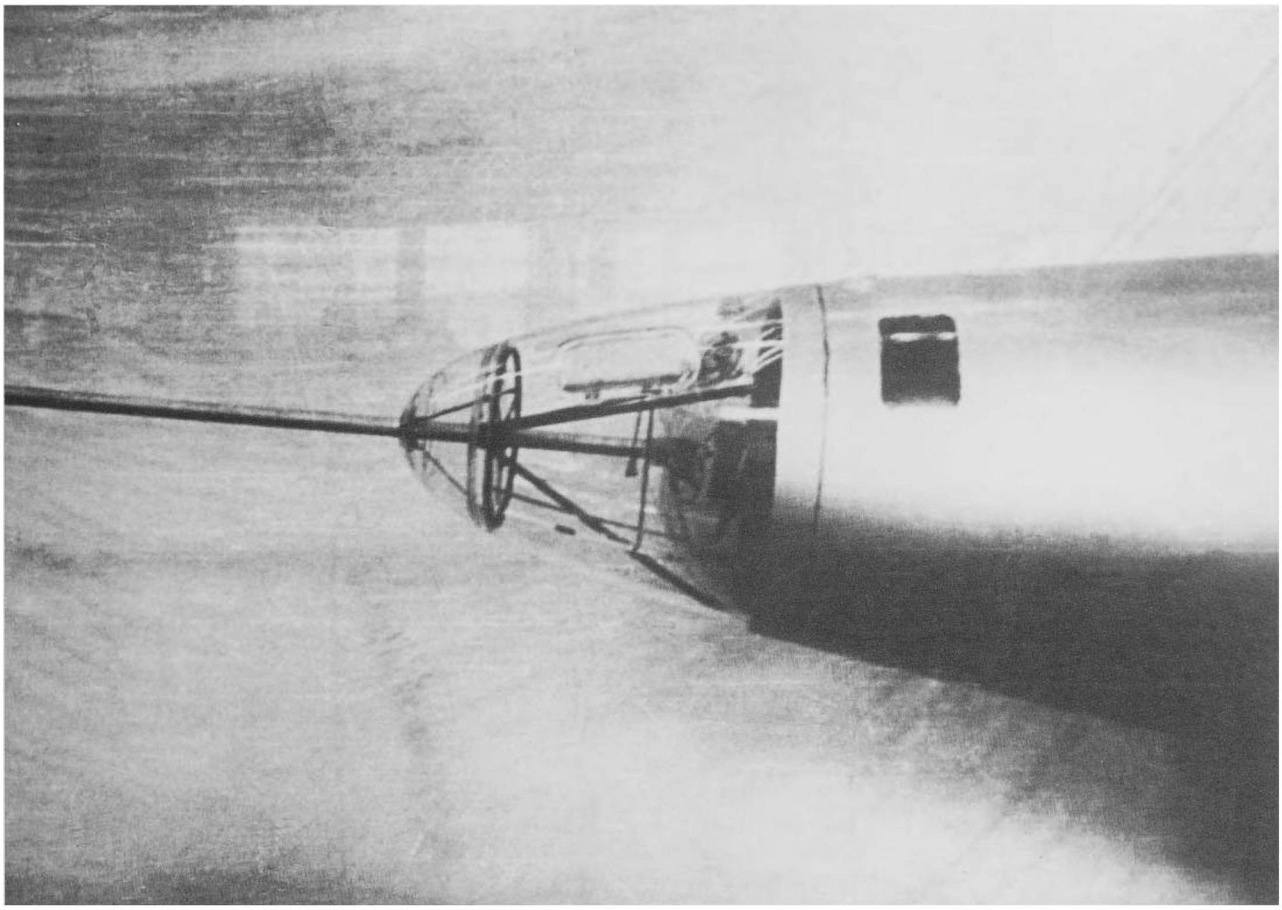
These frames from a movie depict the Boeing B-29 taking off with the underslung DFS 346.

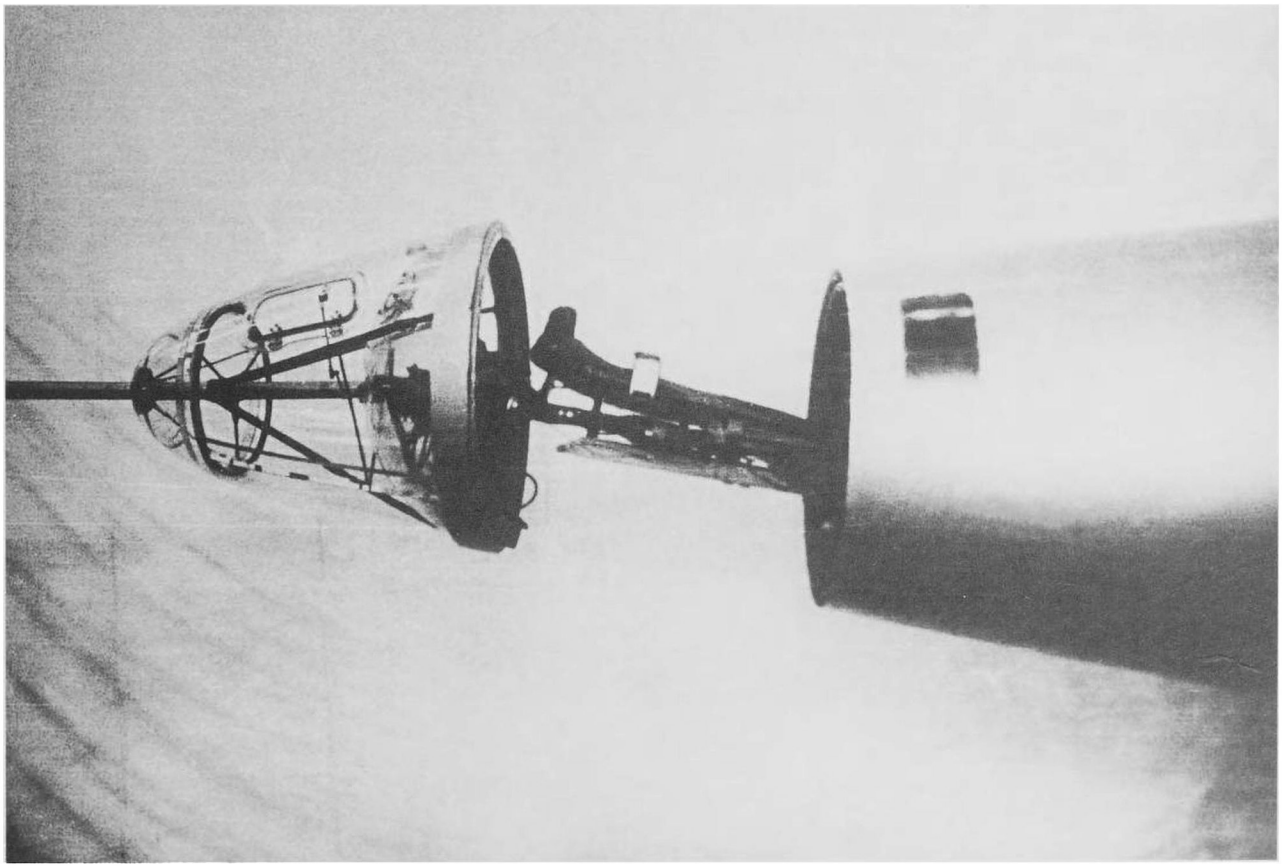
The DFS 346 glides to a landing. Estimating the height above ground proved a problem for the pilot and resulted in a number of hard landings.



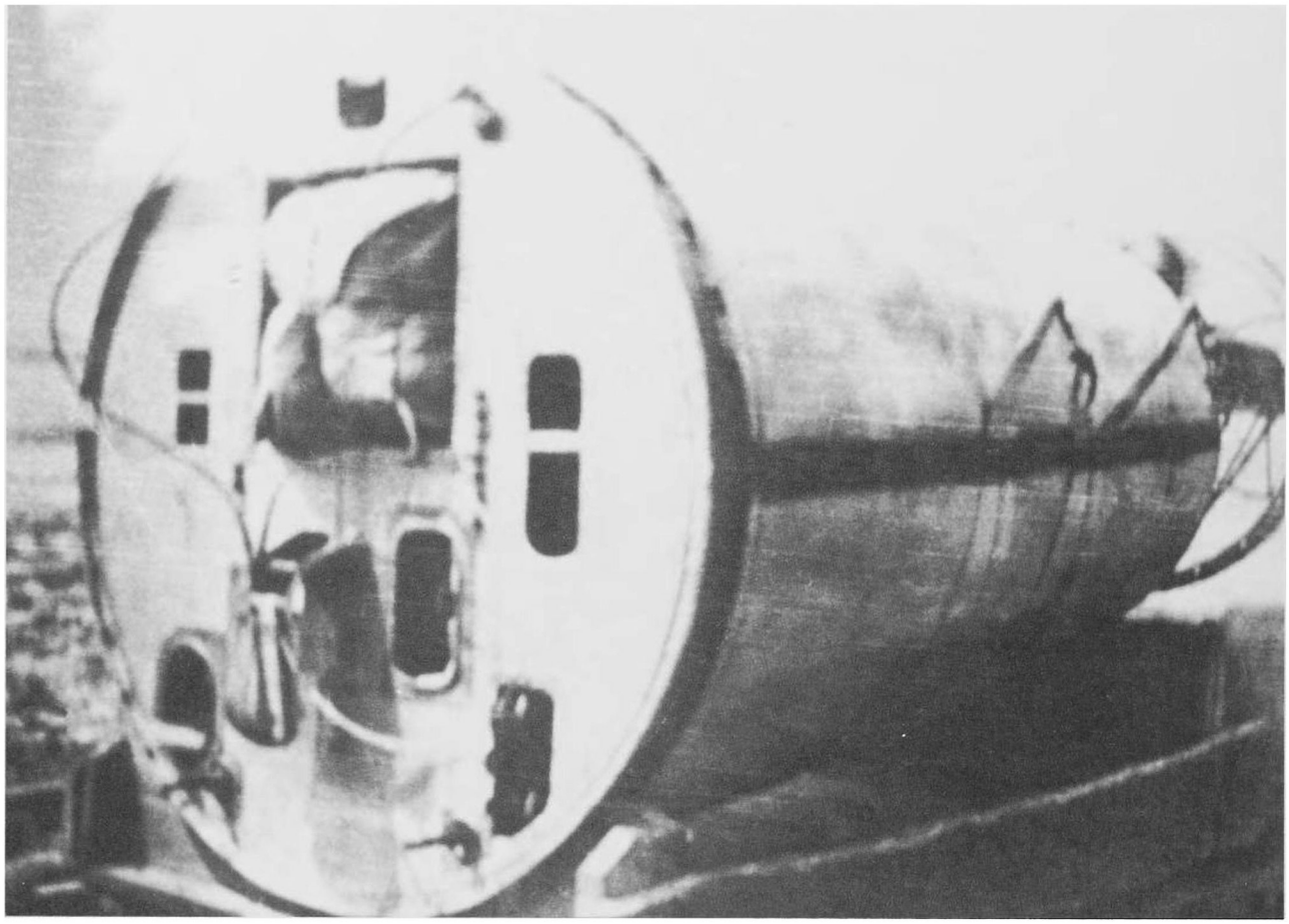


Arrangement of the DFS 346 cockpit.

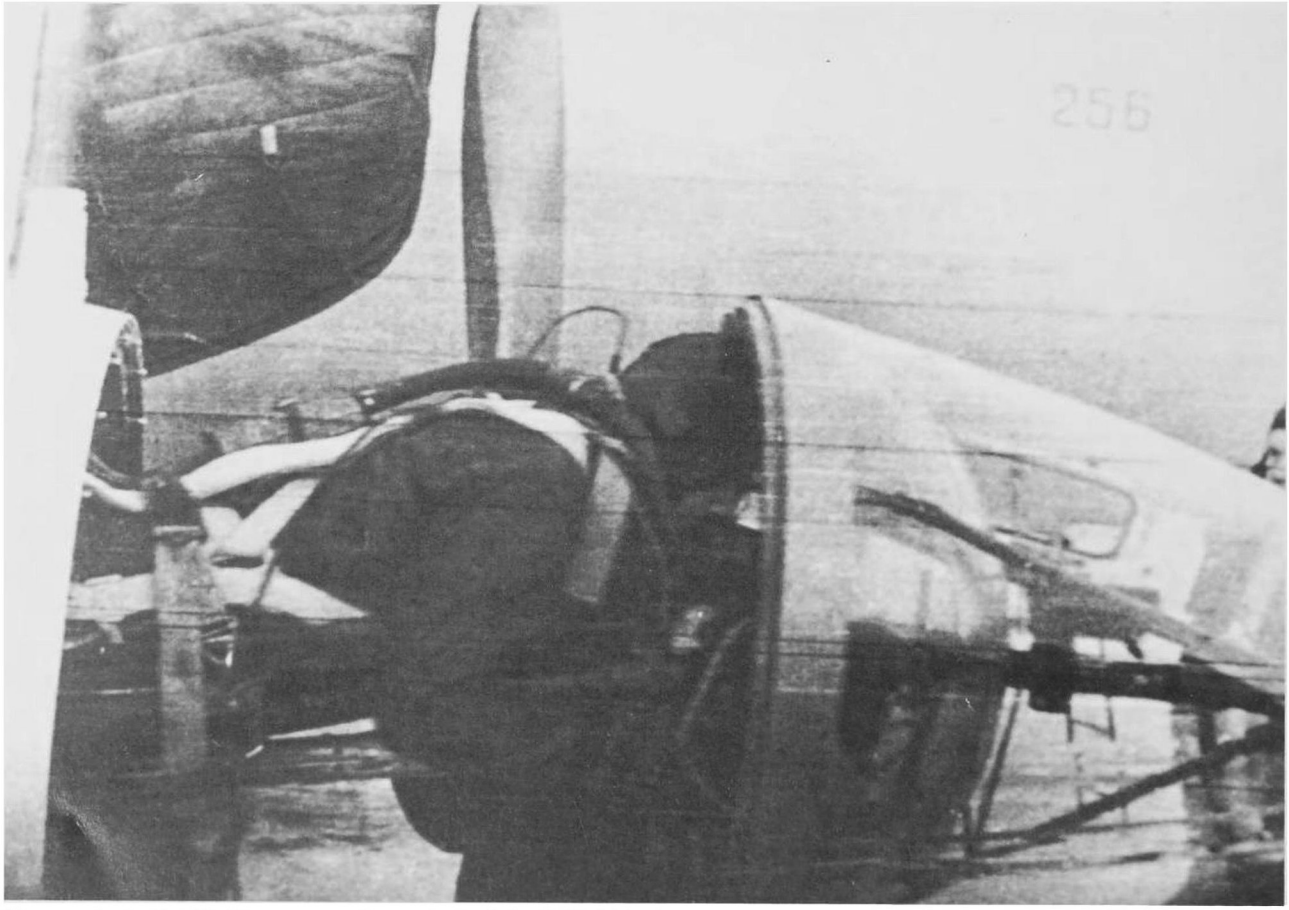




With its fully pressurized cockpit, the DFS 346 was capable of high speeds at great heights. In case of emergency, the aircraft was equipped with a jettisonable cockpit capsule mounted in the nose of the aircraft. The pilot remained in the capsule during the initial phase of the ejection, then after the capsule had slowed his own parachute pulled him from the prone pilot seat. These photographs depict the cockpit glazing separating from the escape capsule.

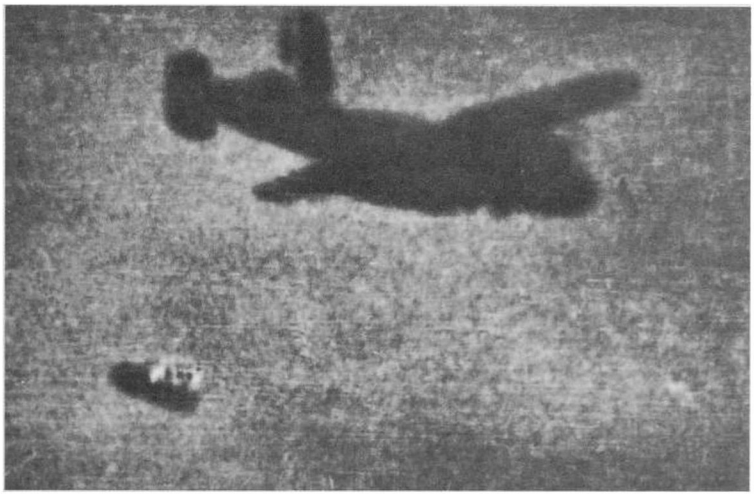


View of the complete escape capsule. Note the braking parachute on the rear of the capsule. This experimental model was used for tests beneath a B-25 Mitchell bomber.

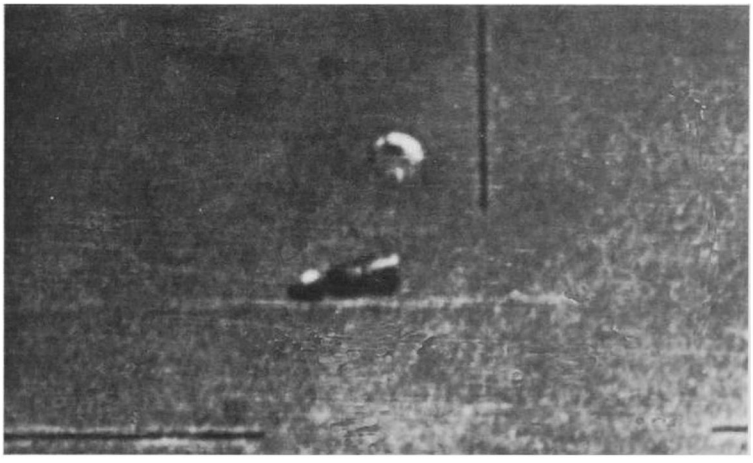


German test pilot W. Ziese enters the cockpit of the DFS 346. Note the prone position of the pilot and molded plexiglass nose cone.

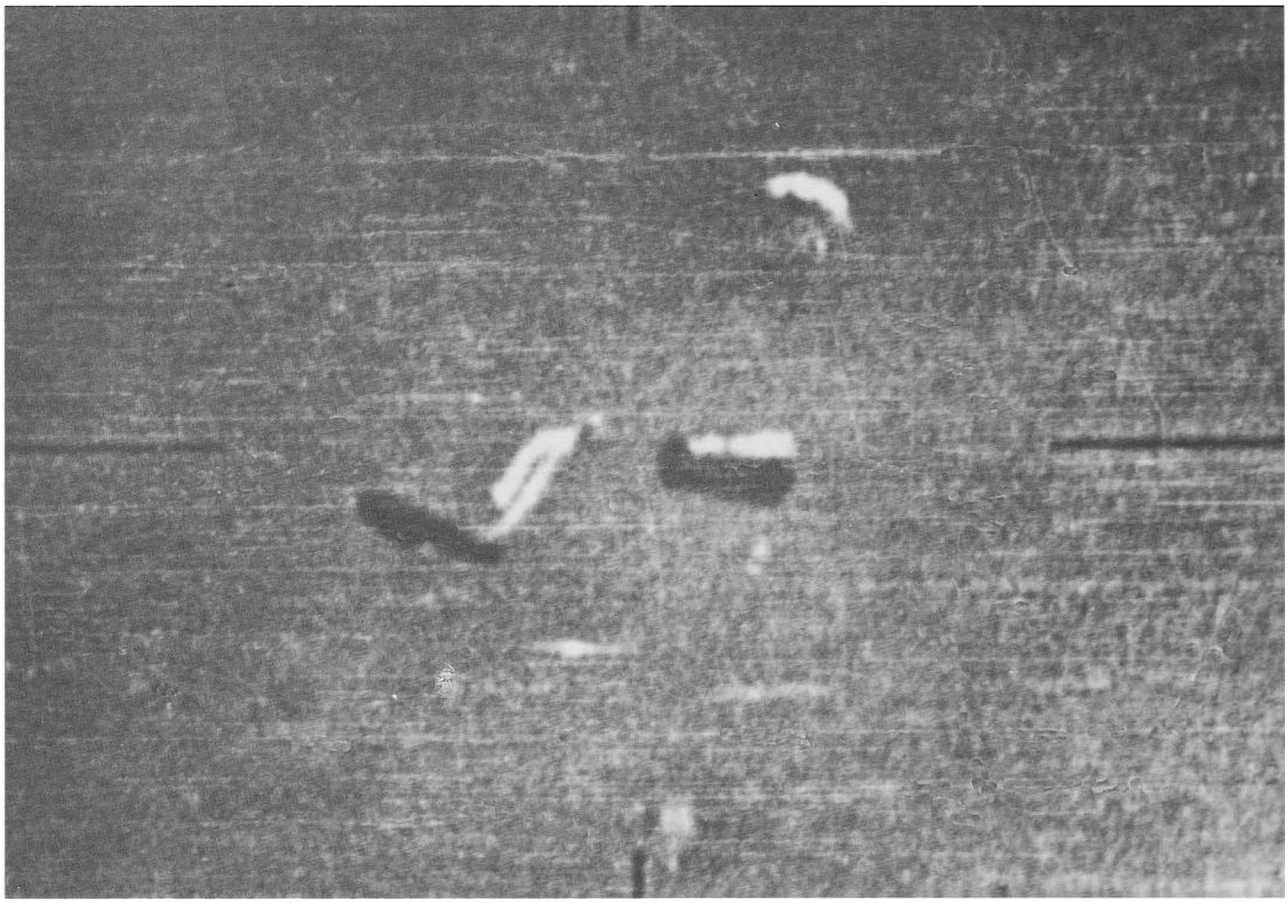
This rare photo depicts the North American B-25 Mitchell with the DFS 346 escape capsule beneath the fuselage.



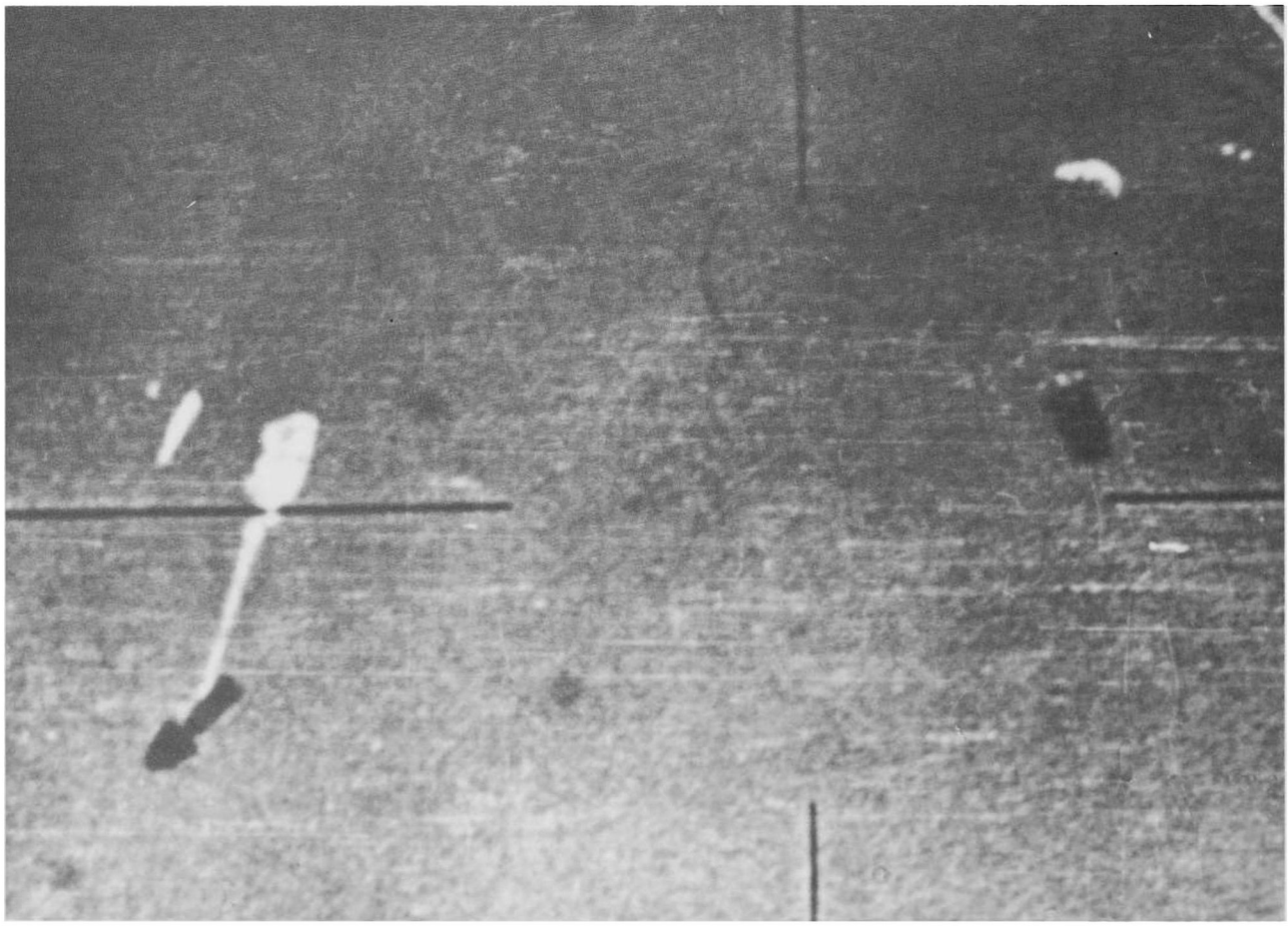
The following sequence of photos is taken from a test film and depicts the operating sequence of the DFS 346 escape capsule. In this photo the capsule has just been released by the B-25.



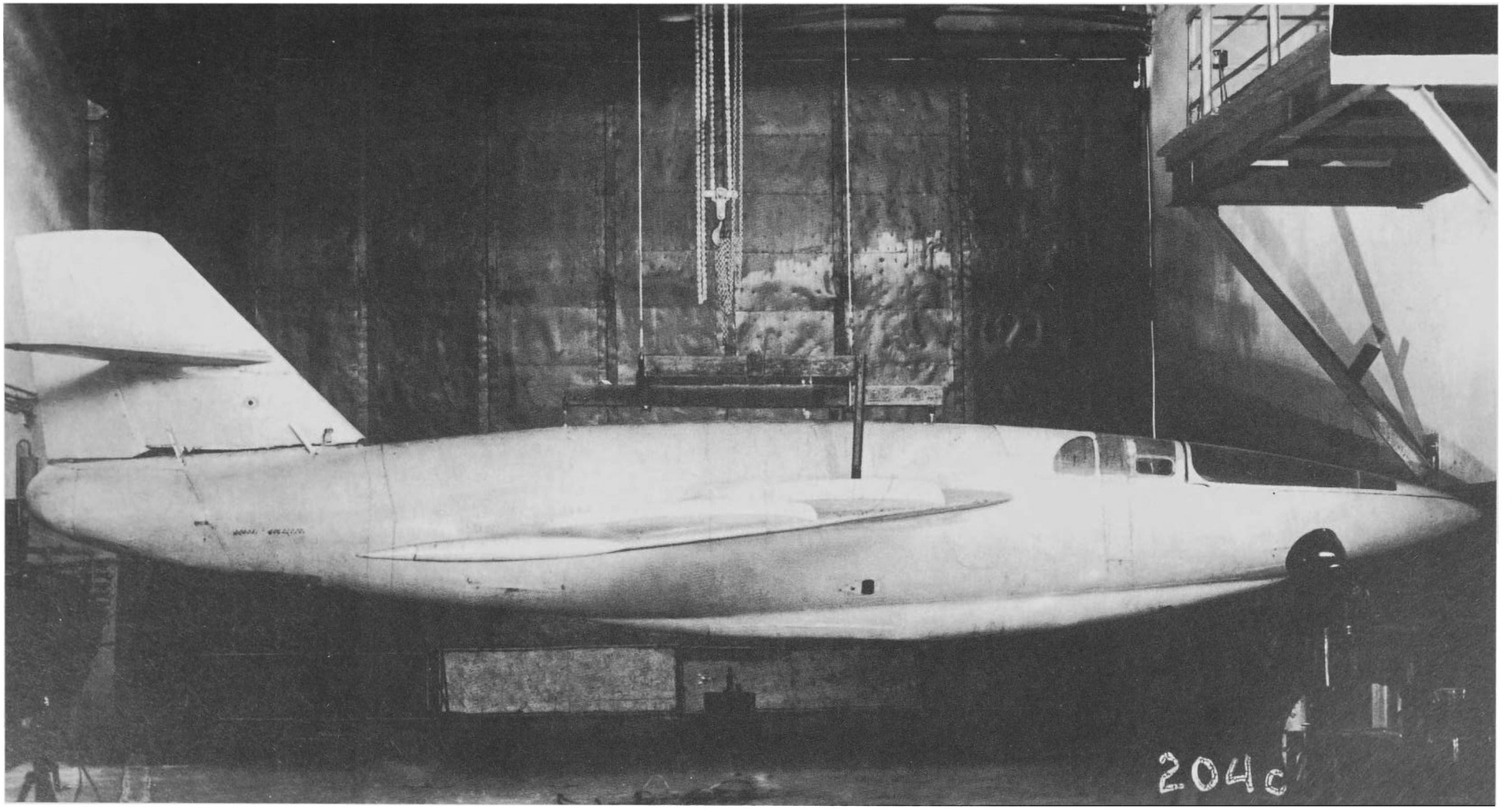
The braking chute has opened, slowing the capsule to an acceptable speed.



After reaching a safe speed the forward glazing and the pilot separate from the rest of the capsule. The plexiglass cone remained in place at this stage to protect the pilot from the slipstream.

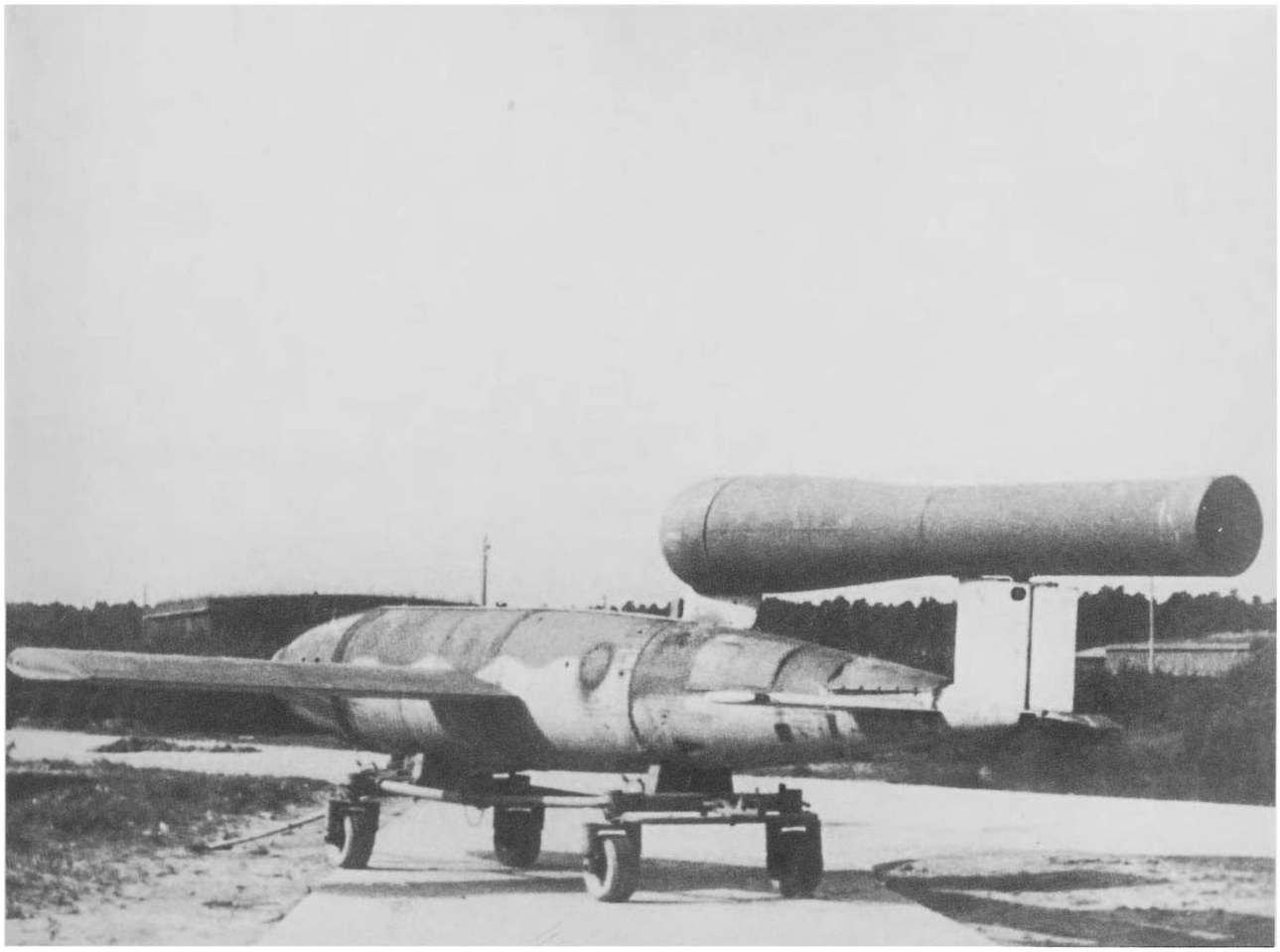


Here the two segments are seen descending beneath their respective parachutes.

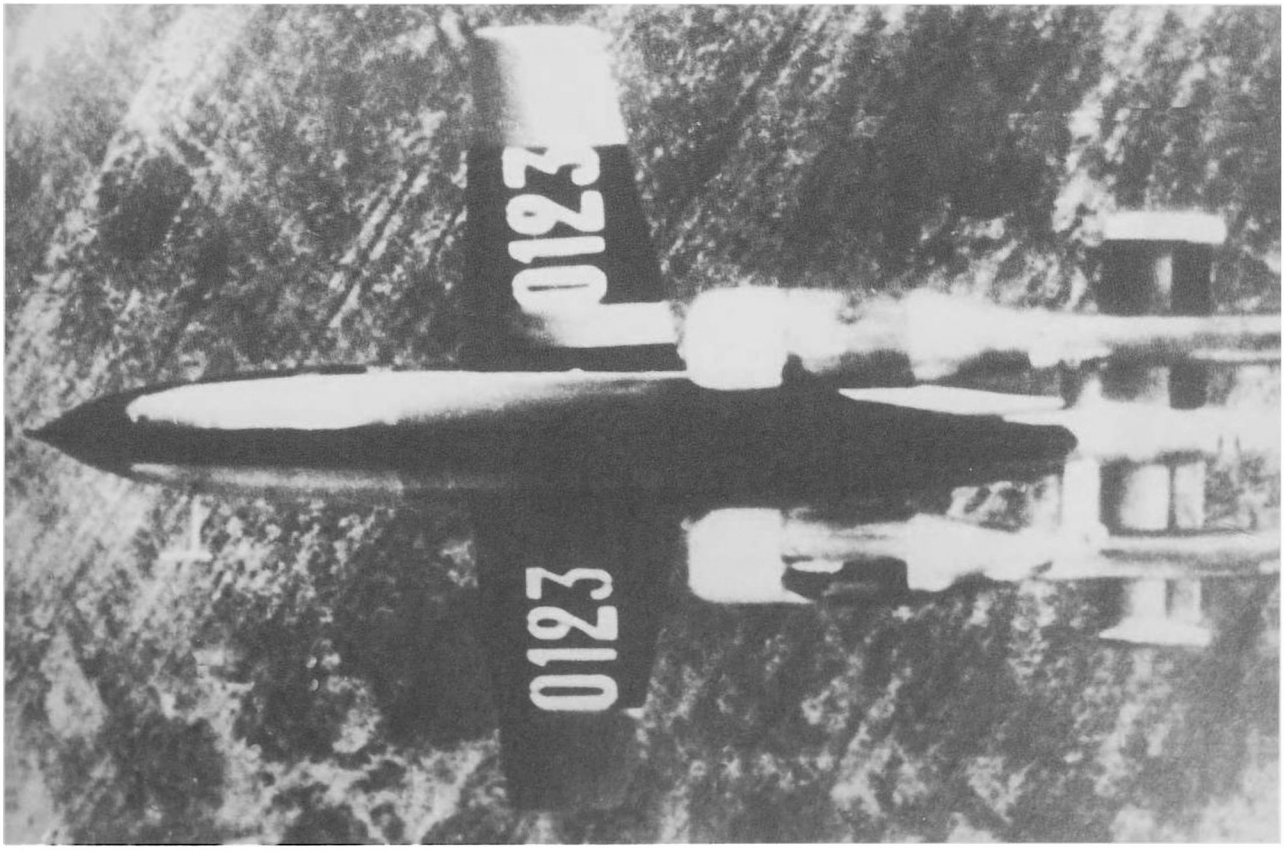


Under conditions of great secrecy the Soviets conducted their own, completely independent high-speed program parallel to the German DFS 346 program. The Soviet research vehicle, which resembled the DFS 346, was designated Bisnovat Type 5.
The similarity of the two types is striking and the Soviet design was most likely a backup to the DFS 346. The aircraft was powered by an RD-2M3VF rocket motor. This photograph depicts the machine in the TsAGI T-104 wind tunnel. Flight trials were carried out at the L II test center. The program was terminated in June 1949 after the aircraft had made six flights and achieved a speed of Mach.775.

This enlargement clearly shows the Ju 2887's engine arrangement in clusters of three.
One of the most advanced of the German jet bomber projects was the Junkers Ju 287. The Soviets captured the half-completed prototype and continued development under the designation EF-131. Initial test flights were carried out in 1946.
The photos on this page are of poor quality, however they are the only proof of this project. Taken at Ramenskoye near Moscow in 1948, they at least confirm the existence of this fascinating aircraft.

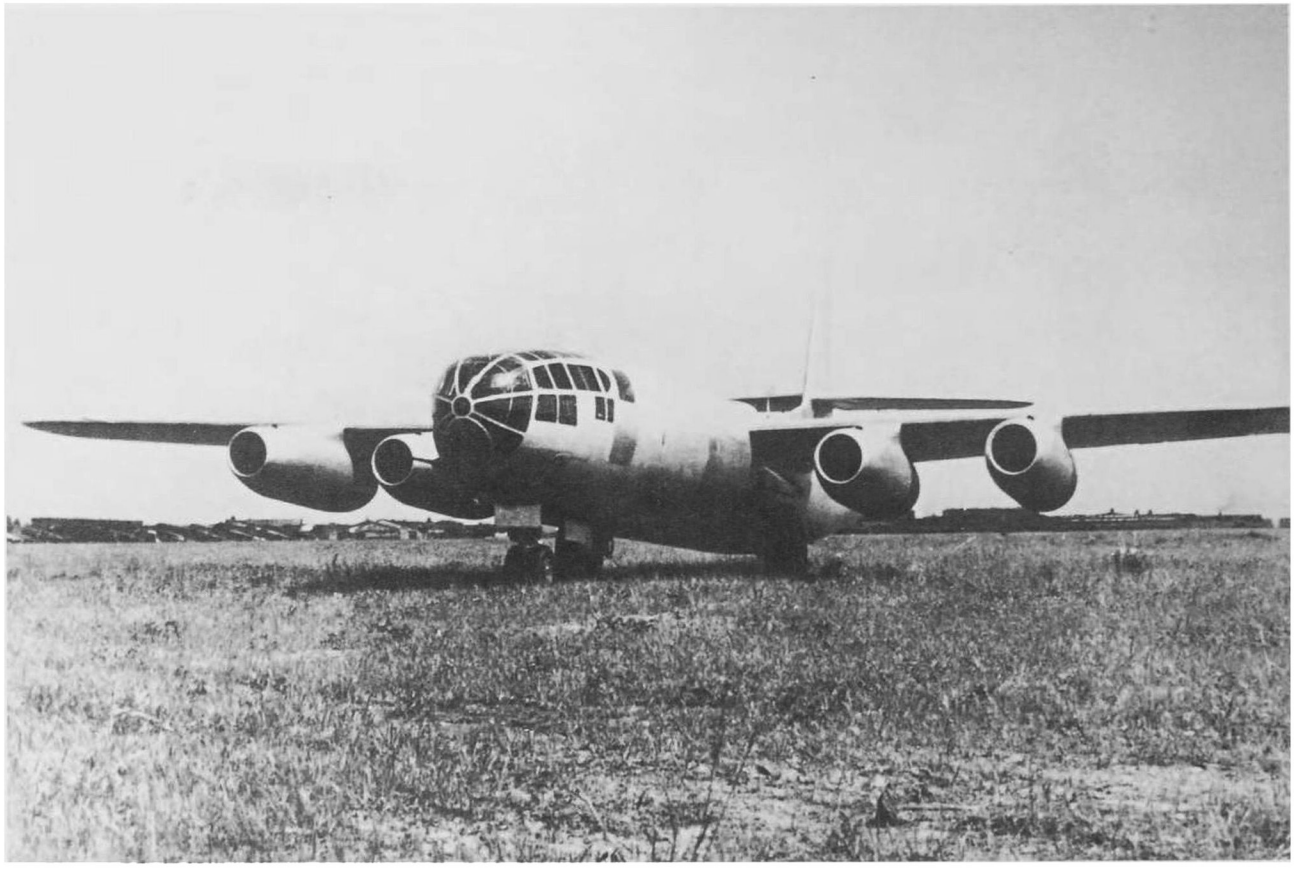


German V-weapons development was of particular interest to the Soviets. A number of V-1 flying bombs were captured and taken to the Soviet Union, where their development was continued.

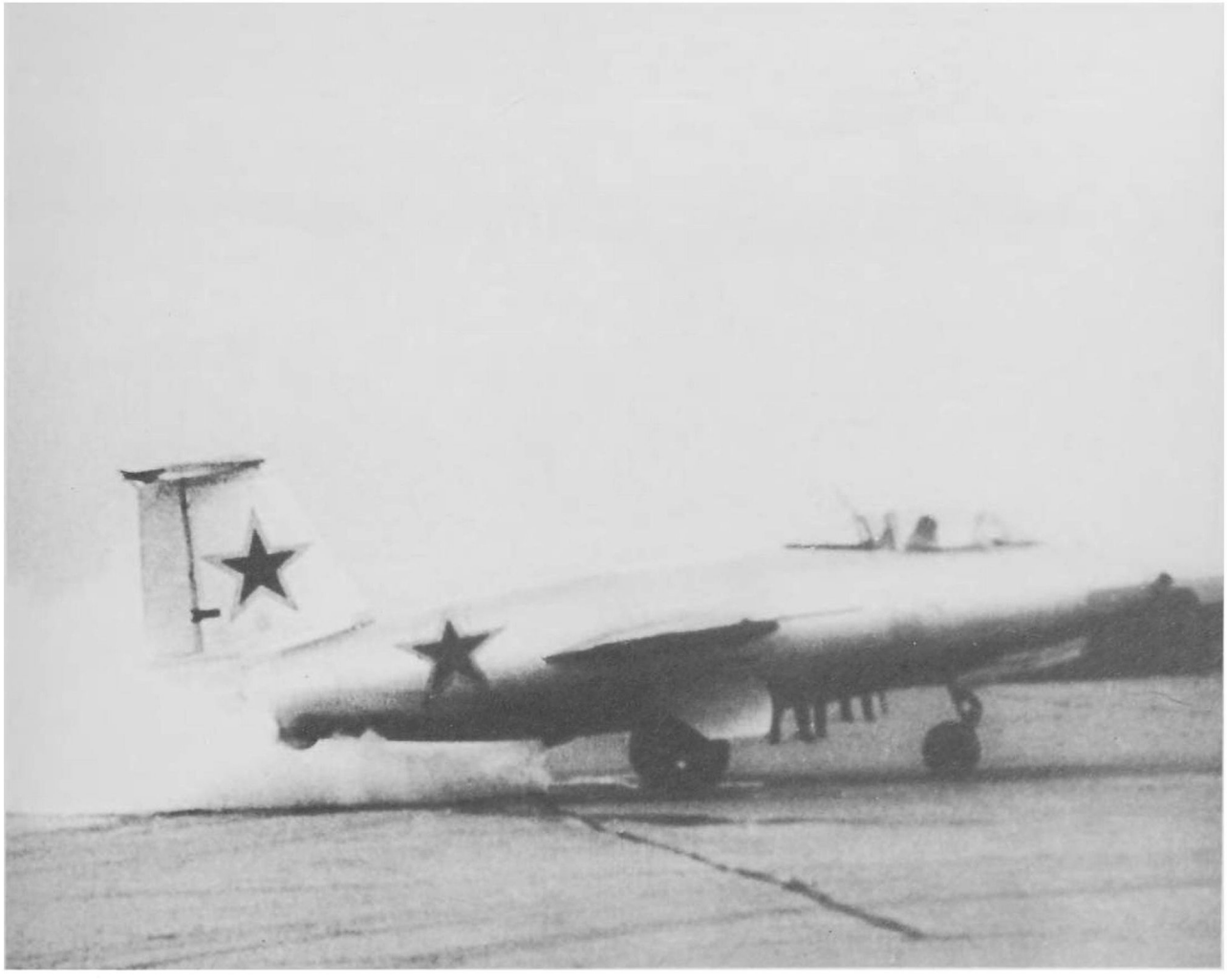


The Chelomei 16 X, a Soviet development with twin power plants. The type's similarity to the V-1 is obvious.

Following the successful use of the B-29 as a carrier for the DFS 346, the Tu-4 was used in trials with the Kelt cruise missile.



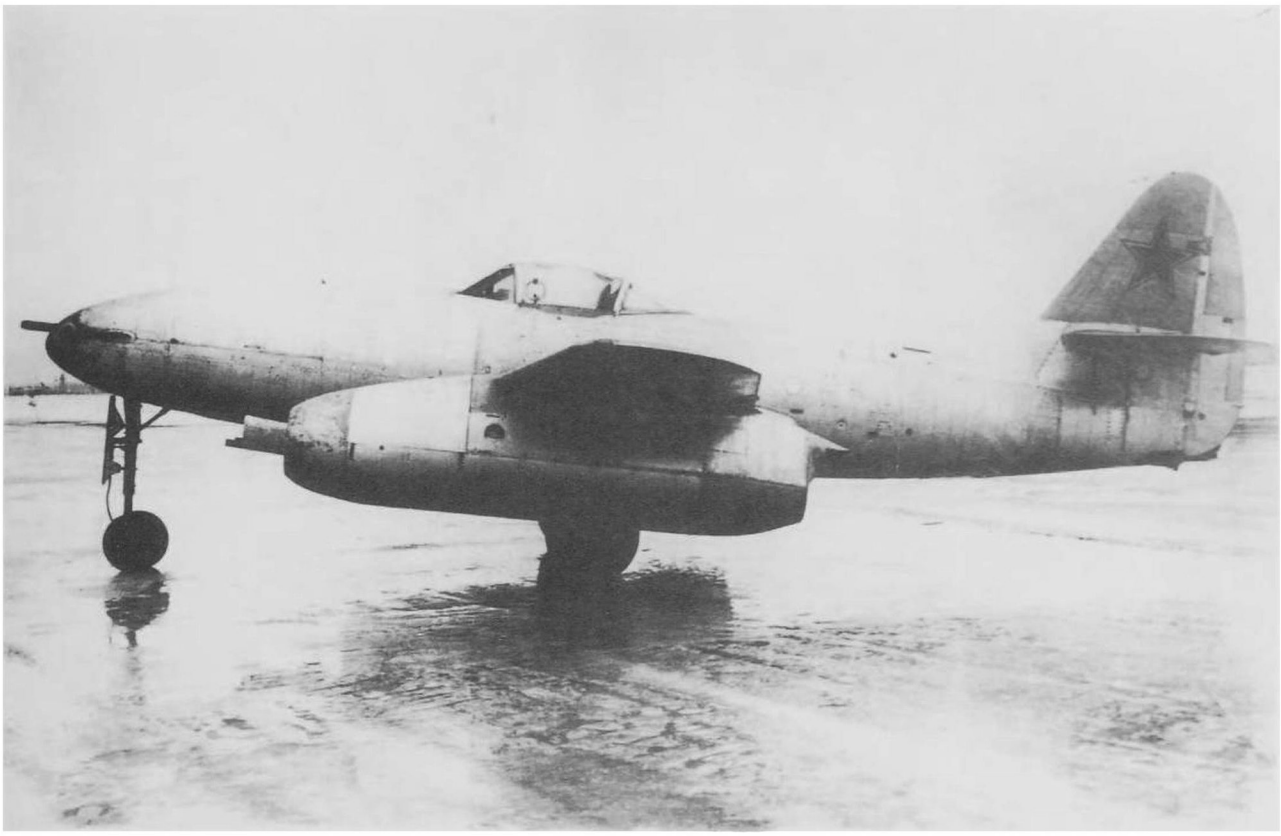
German influence is also very evident in this aircraft. The Il-22 was almost identical to the He 343 project. Flight tests began on 24 July 1947 and ended on 22 September. On 3 August 1947 the aircraft took part in the annual Tushino airshow.



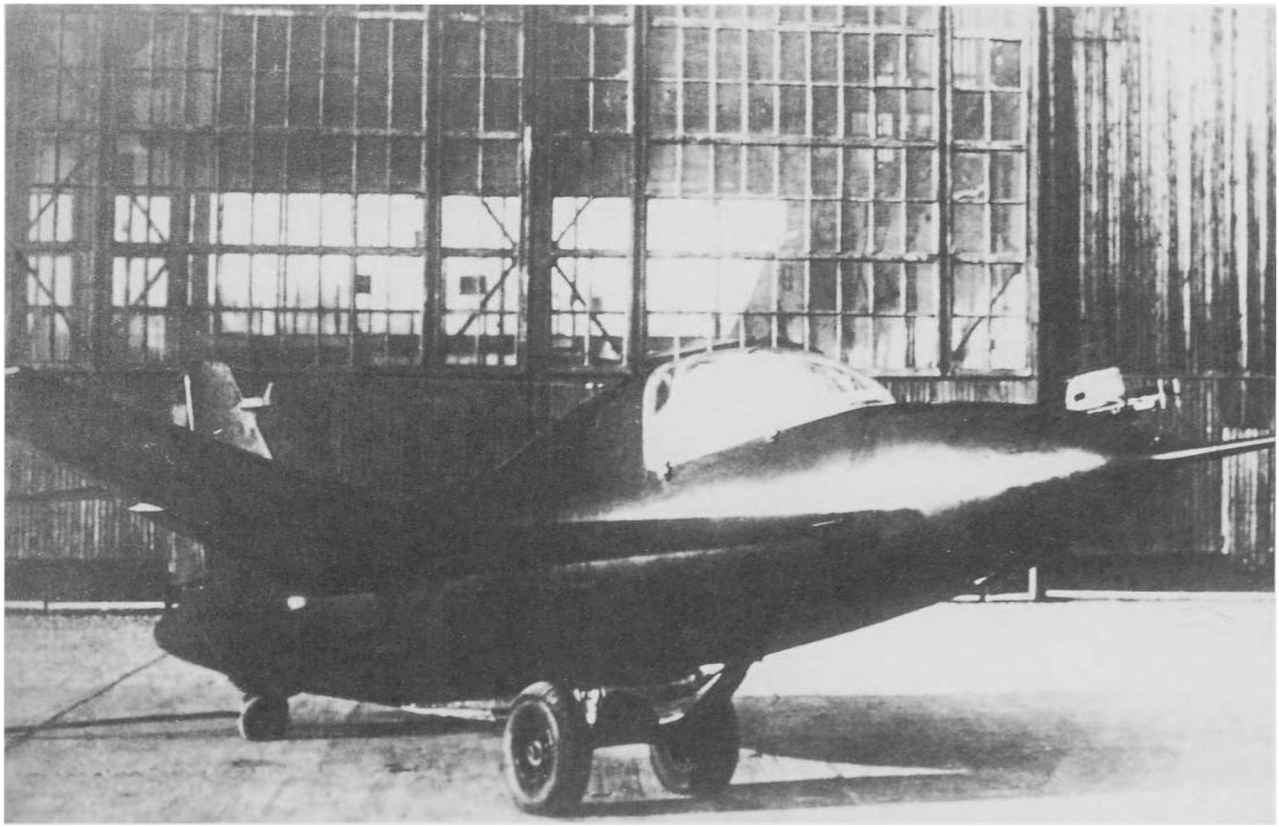
In spite of its amazing similarity to the Me 263 V1 (Ju 248 V1), this is a Soviet design. Nevertheless, the German technological influence is undeniable.

Of all-metal construction, the La-9 marked a departure from the Soviet practice of mixed construction for fighter aircraft. Following the German practice of all-metal construction, the La-9 did not appear until after the war, by which time it had been rendered obsolescent by jet technology.

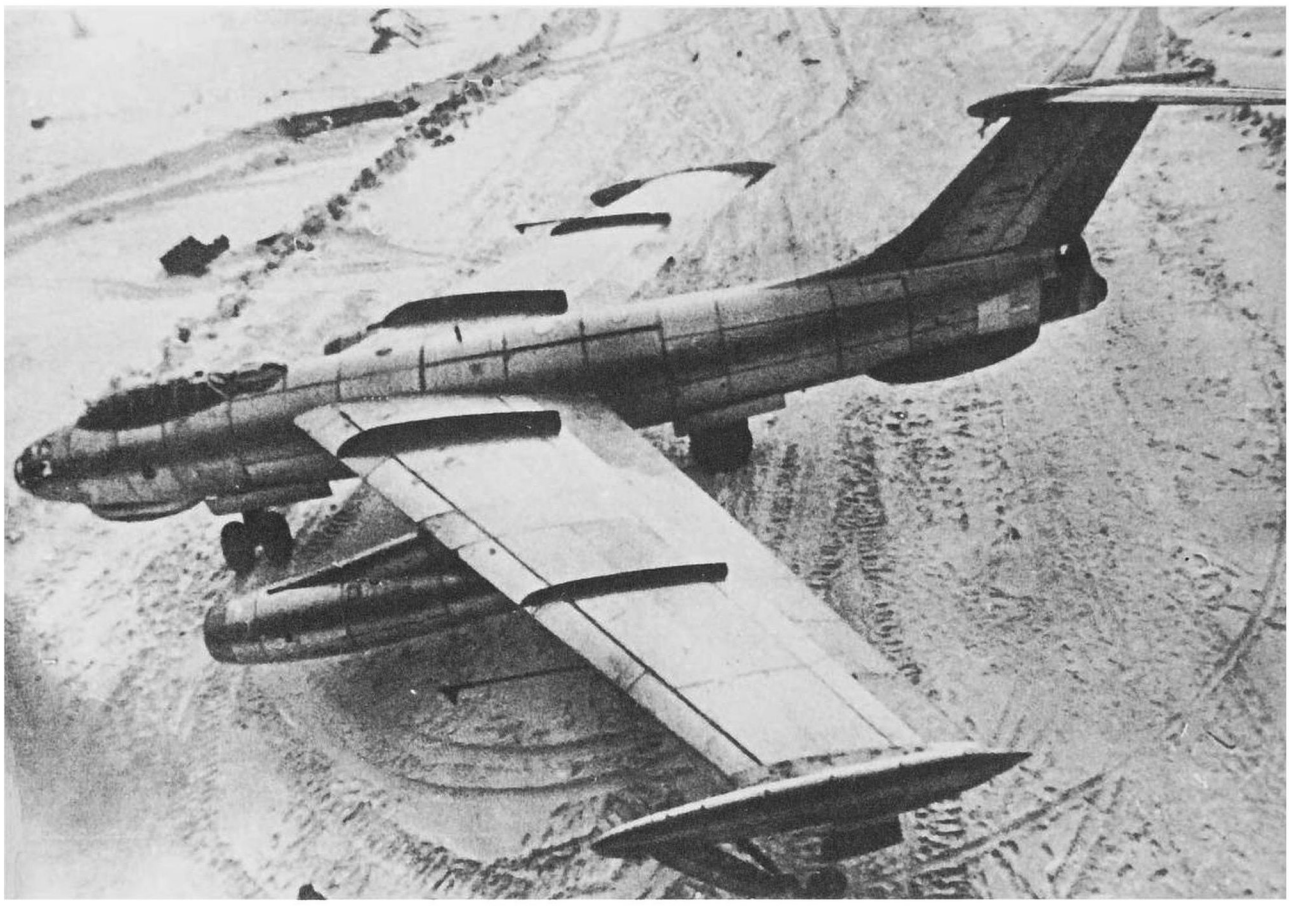
The basic principle of the Fw 189 is evident in this Soviet design, the Sukhoi Su-12.



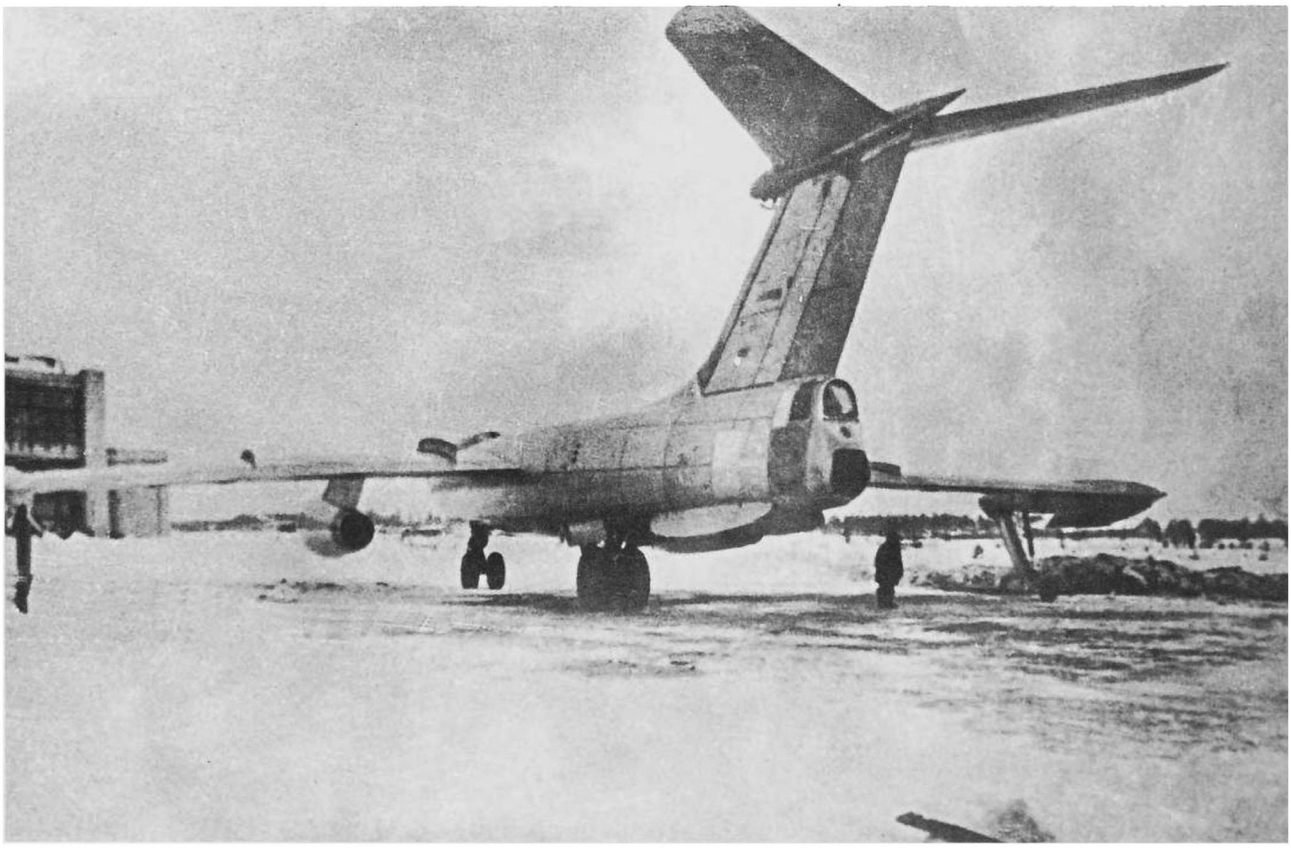
The Sukhoi Su-9 light fighter and fighter-bomber was an independent development based on the concept of the Messerschmitt Me 262. Although the machine is outwardly similar to the Me 262, it differed from the German design in having a fuselage of oval cross-section and unswept wings. One prototype was built in 1946, after which the project was terminated.



The LL-2 experimental glider by P.V. Tzybin was a research aircraft designed to test the aerodynamics of forward-swept wings, which were first used on the Junkers Ju 287 V1.
The aircraft carried out more than 100 test flights and provided useful data relating to forward-swept wings.

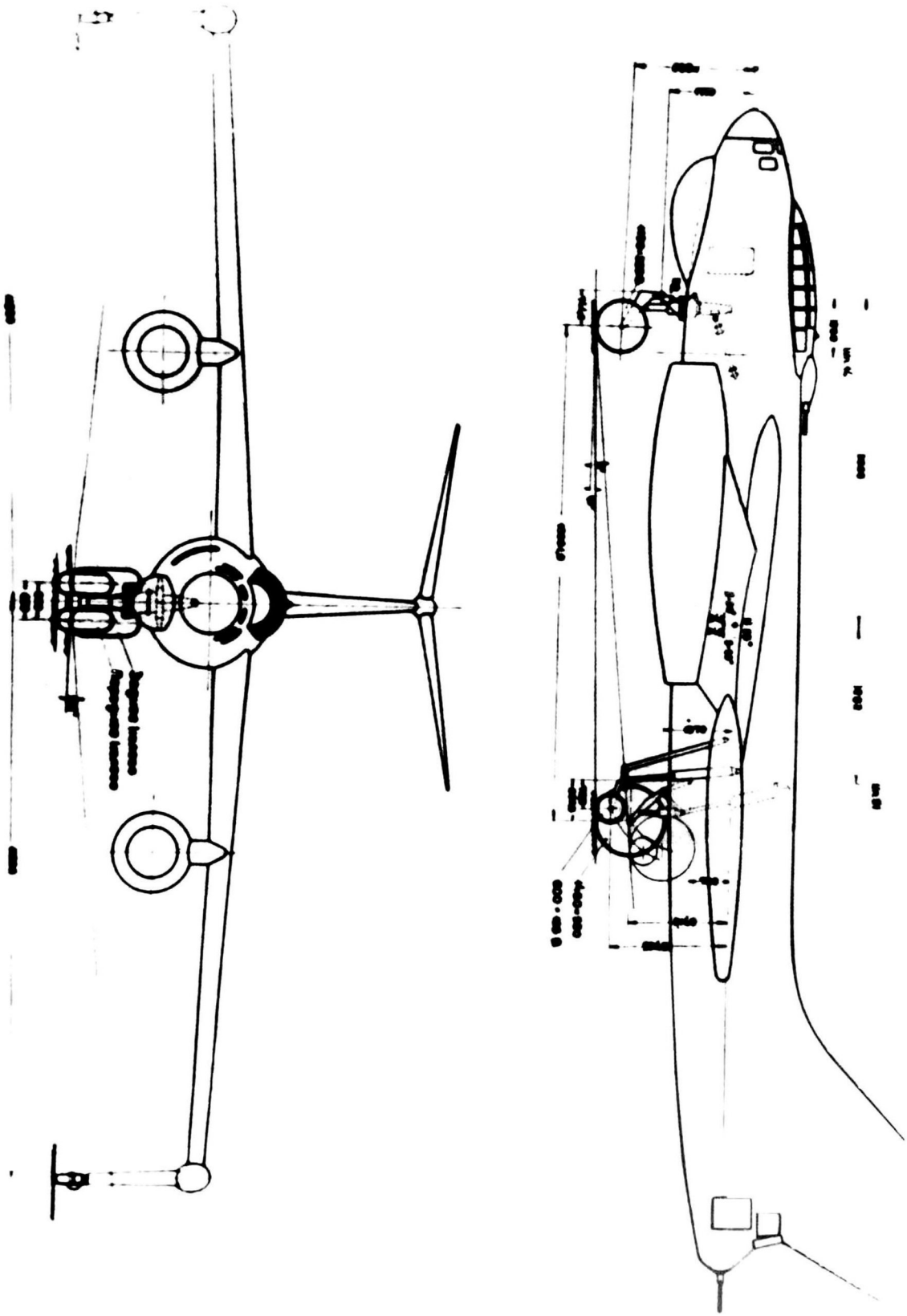


The EF-150 was a bomber which was developed in the Soviet Union by the OKB-1 design bureau under the direction of German designer B. Baade. After the project was halted, the general concept was continued to produce the EF-152. The later Baade 152 was intended to be the first civil airliner produced in East Germany, however the project was abandoned following the crash of a prototype.



Rear view of the EF-150. Note the large boundary layer fences on the wings.

Copy of the original drawing with dimensions of the EF-150.



APPENDICES

Appendix I:

Rates of Aircraft Production and Military Strengths Germany/Russia 1910-1917

Date	Germany		Russia	
Month/Year	Production Rate	Military Strength	Production Rate	Military Strength
1910	##	5	##	3
1911	24	52 #####	120	28 #####
1912	136	48 #####	170	106 #####
1913	446	##	280	##
Aug. 1914	1348	232 ###	535	244
July-August 1915	4532	482	1305	199
Aug. 1916	8182	1054	1870 (1769)	250
March1917		1683		545 ####
June1917				581
November1917	19746	1755	1897# #####	381
March	1918	2815		##
November	1918	14123		##
		2548	##	

Legend

#	Number per year	
##	No information	
###	190 in the west / 42 in the east	
####	Northern front 93, western front 125, southeast front 259, Caucasus and other fronts 104. Total strength 1,031 (including unserviceable).	
#####	Germany	1911 – 50 army, 2 navy, 101 private
		1912 – 46 army, 2 navy, 100 private
	Russia	1911 – 23 army, 5 navy, 41 private
		1912 – 99 army, 7 navy, 50 private
######	Plus 1,800 aircraft from other purchases from August 1917 on.	

Appendix II:

German Aircraft in Soviet Arctic Service

Registration	(Sov. Registration)	Type	Serial No.	Name
N-1	H-1	Dornier Wal	95	Sovetsky Sever
N-1	H-1	Dornier Wal	130	Komsevmorput-1
N-2	H-2	Dornier Wal		Komsevmorput-2
N-3	H-3	Dornier Wal		Komsevmorput-3
N-4	H-4	Junkers JuG-1	956	
N-5	H-5	Junkers W 33	82657	
N-6	H-6	Dornier Wal		
N-7	H-7	Dornier Wal		
N-8	H-8	Dornier Wal		
N-9	H-9	Dornier Wal		
N-1 0	H-1 0	Dornier Wal		
N-17	H-1 7	Junkers JuG-1		
N-26	H-26	Dornier Wal		
N-62	H-62	Junkers W 33	89	
N-63	H-63	Junkers W 33	5	
N-235	H-235	Dornier Wal		
N-236	H-236	Dornier Wal		
N-237	H-237	Dornier Wal		
N-401	H-401	Focke Wulf Fw	200	
N-500	H-500	Focke Wulf Fw	200	

Dornier Wal Deliveries between 1926 and 1933

Year	Number	Serial No.
1926	2	56 u. 57
1927-28	20	90-100 / 127-135
1932-33	2 (at least)	238 u. 239
1932-33	3 (probably)	240, 243 u. 244

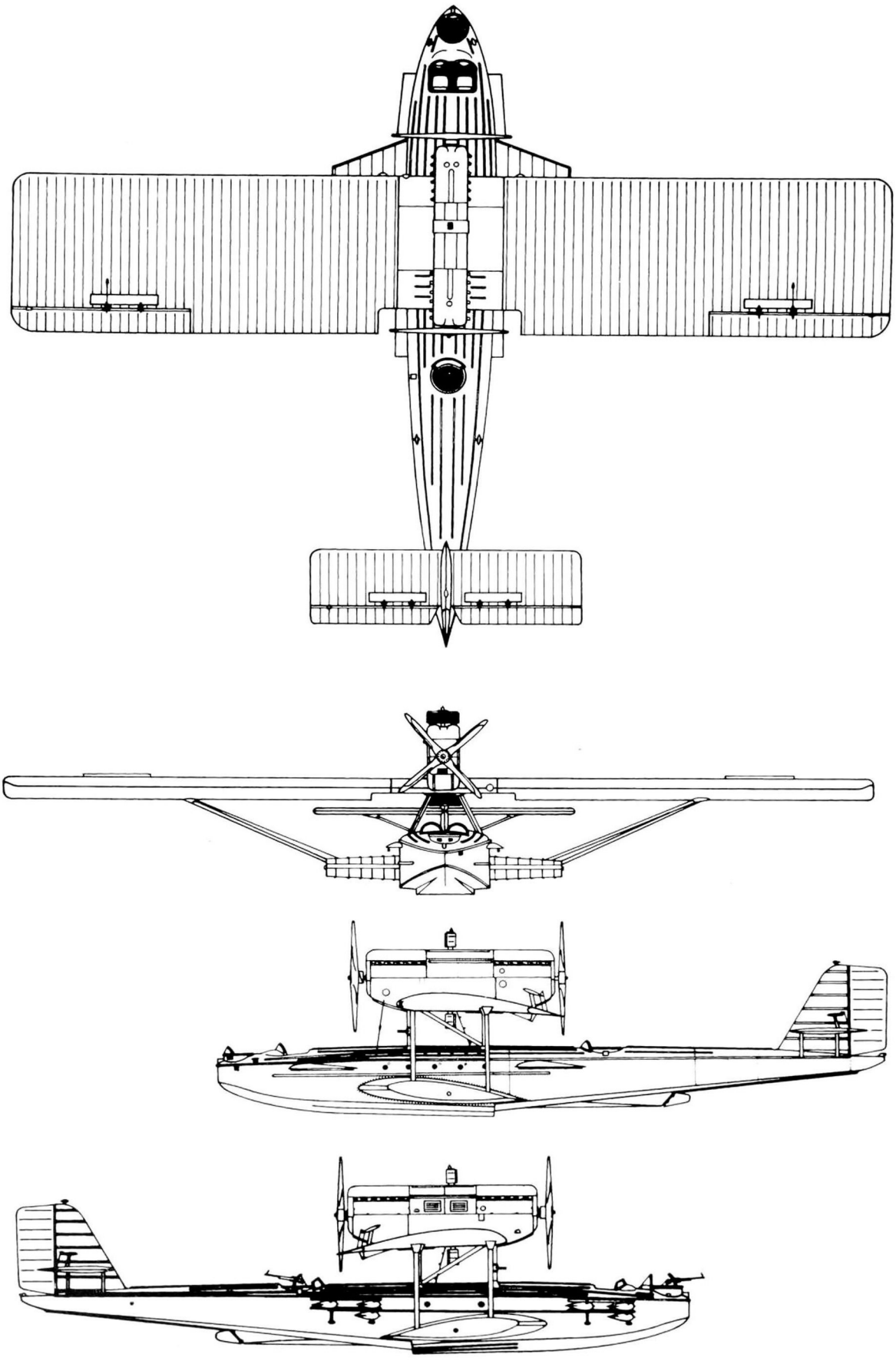
Appendix III:

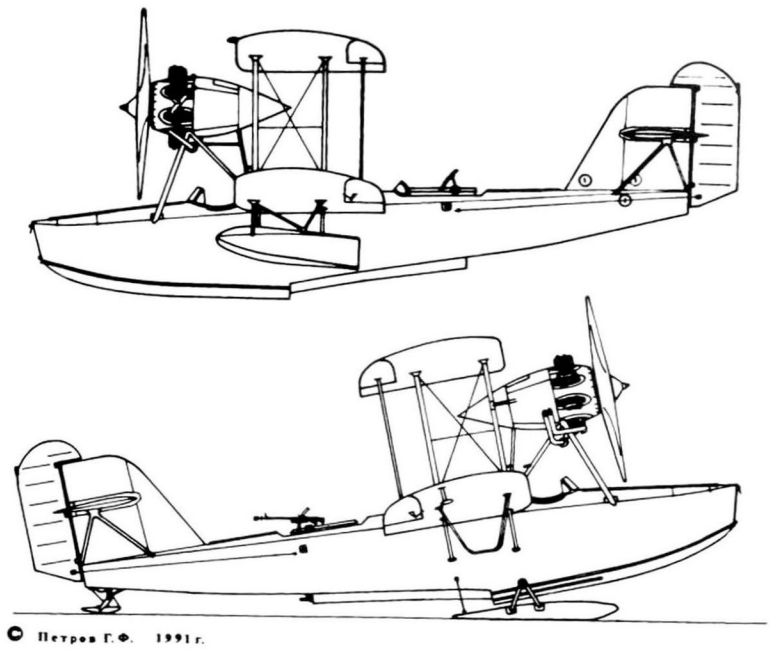
List of Known Junkers F-13s with Russian Registrations

Russian Registration	Serial No.	German Registration	German Name	Russian Registration	Serial No.	German Registration	German Name
R-RECB	547		Dz 31 Adler	R-RASA	668	D-306	
R-RECA	569		Dz 30		669	D-305	
	571	Dz 36			670	D-307	
R-RECD	572	D-252	Lerche	R-RDAS	671	D-308	
	579	Dz 32			672	D-309	
	586			R-RDAP	673	D-310	
	589	D-205		R-RDAR	674	D-311	
R-RECA	590	D-194	Kuckuck		675		
R-RECF	630	D-214			676		
R-RECH	636	D-225	Piepmatz		677		
	637	D-189		R-RODA	679		
R-RECC	643	D-231	Wachtel		691		
	647	D-257		R-RODB	692		
R-RDAO	648	D-258		R-RECG	693		
R-RDAA	649	D-259			702	D-424	
RR 40	650	D-260	Eisvogel	R-RDAY	712	D-340	
R-RECJ	651	D-265		R-RDAZ	713	D-341	
R-RDAK	652	D-266		URSS-307	723	D-366	Eismowe
R-RDAC	653	D-261		URSS-308	730	D-372	Kbnigsadier
R-RDAB	654	D-262			733	D-388	
R-RDAD	655	D-267		R-RODB	749		
R-RDAE	656	D-268			752	D-558	Mauersegier
R-RDAF	657	D-269			753		
	658	D-270		RR 41	757	D-247	Steinschmatzer
R-RDAG	659	D-271		URSS-320	765	-462	K6nigsfischer
	661	D-286			767		
R-RDAL	664	D-289		RR 38	2017		
	666	D-303		R-RUAZ	2020		
R-RDAN	667	D-304		R-RDAM	2034		
				R-RDAU	2035		
				R-RDAV	2036		

List of Known Junkers F-13s with Russian Names

MOSSOVIET (1)
ODVF
SAMOLET CEKUBU
SIBREVKOM
GOSPLAN
MOSSOVIET(2)
PROMBANK
BUCHARSKI ULI
PRAVDA
LATYSHSKIY STRELOK
PRESIDIUM VSNKh
SCHERVONEC
KRASNYI KAMVOLSCHIK
MOSTORG





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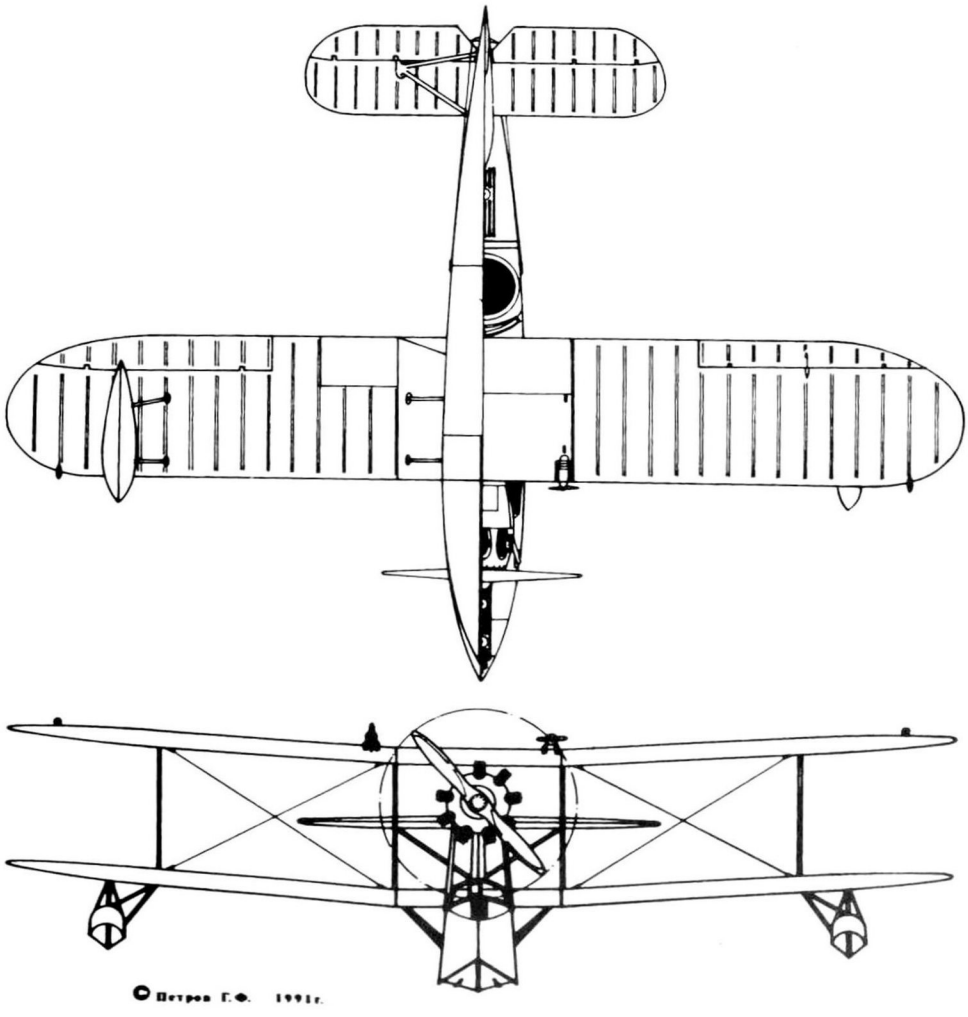

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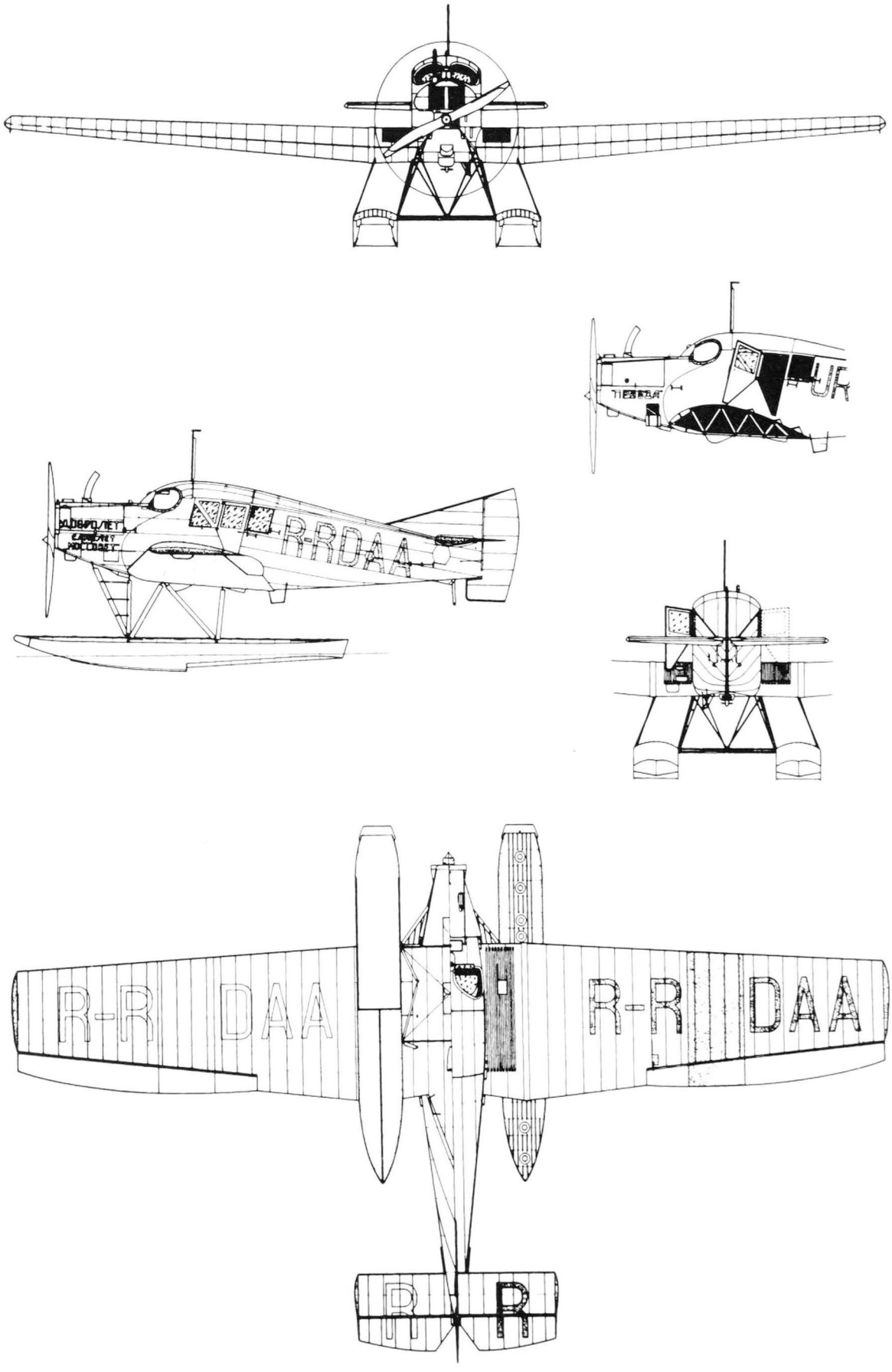
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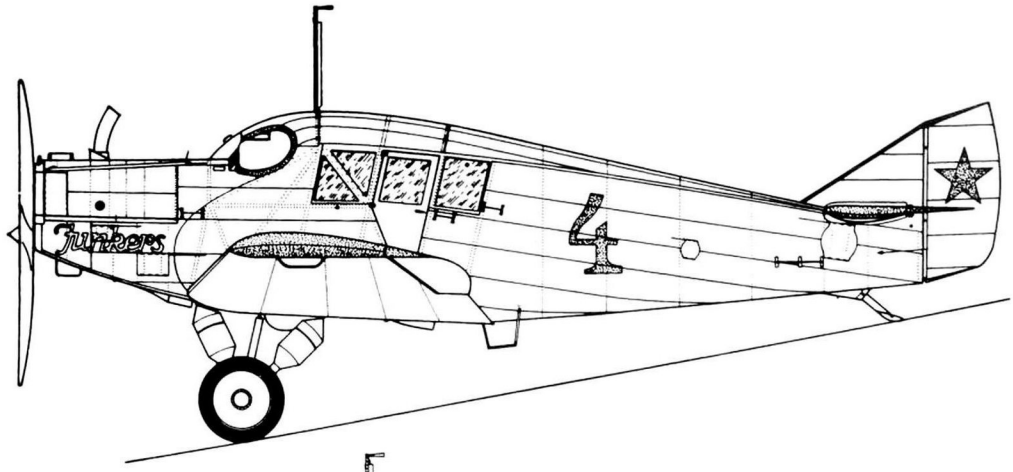
R-R DAA
R-R DAA
R
R


Junkers
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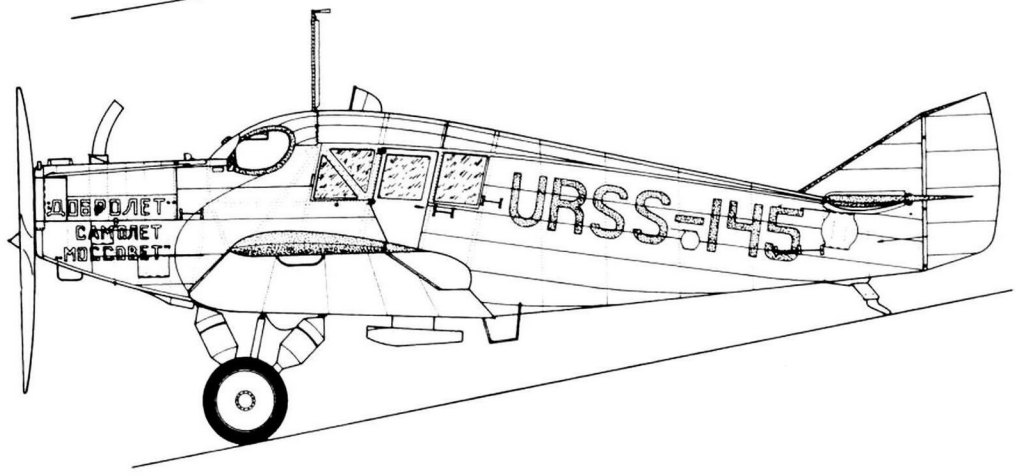
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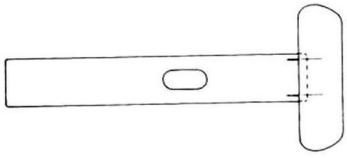
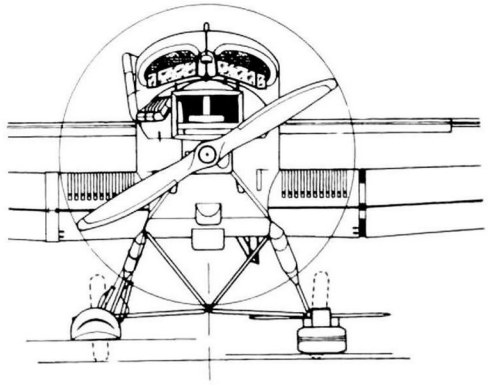
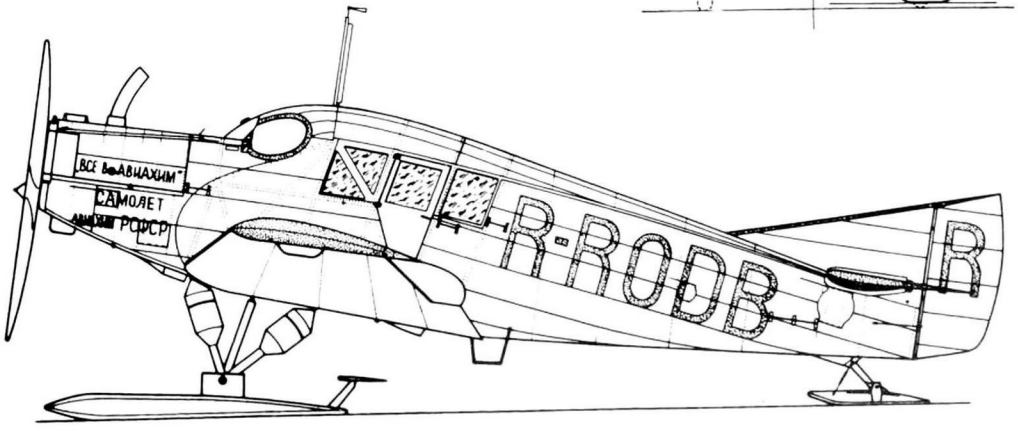
URSS-145



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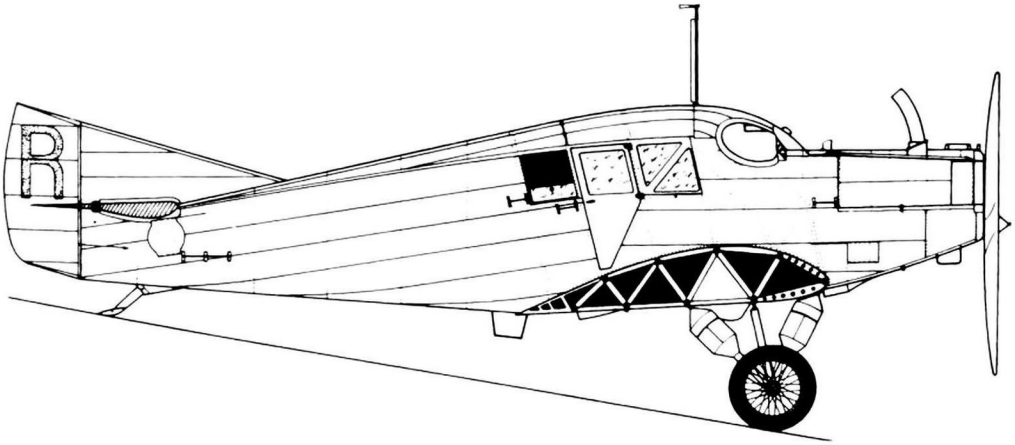
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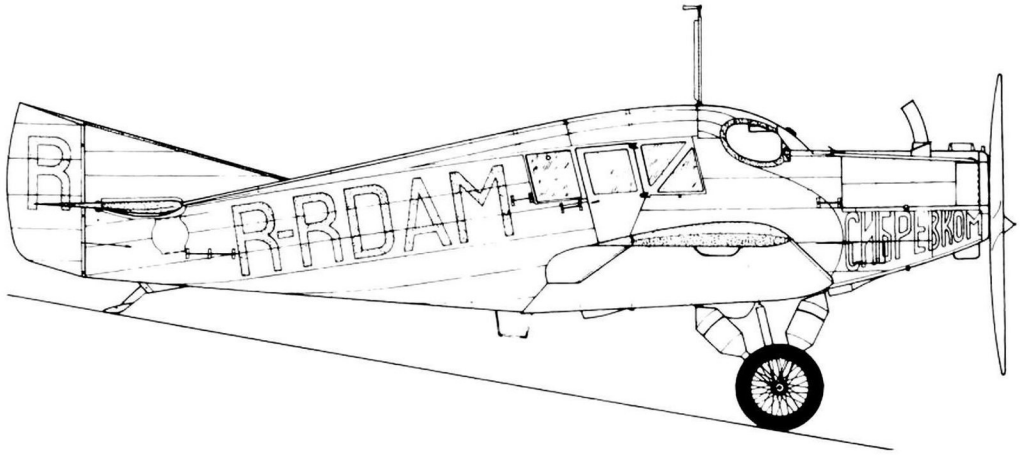
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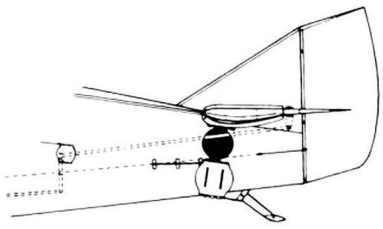
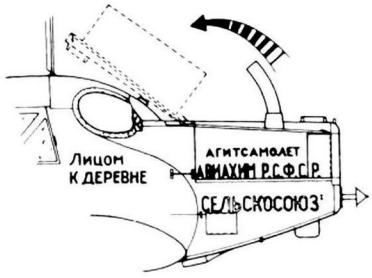
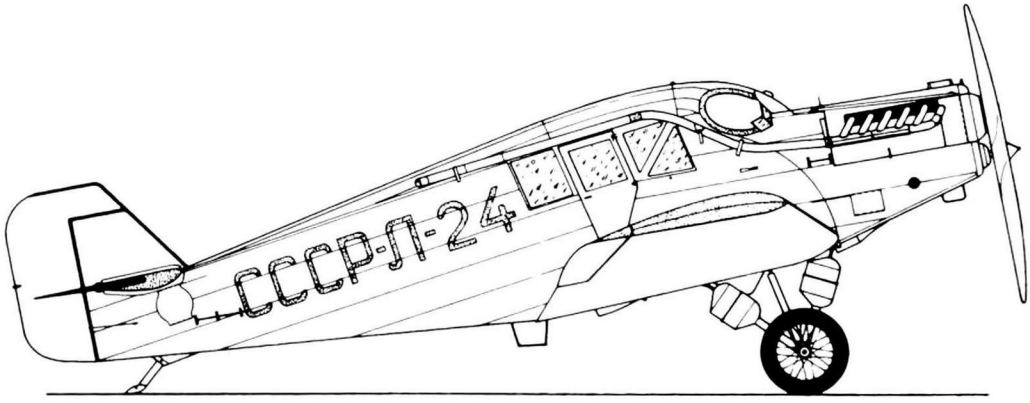
СИБРЕВКОМ




Лицом
к деревне
АГИТСАМОЛЕТ
ЦЕНТРАВИАХИМ Р.С.Ф.С.Р.
СЕЛЬСКОСОЮЗ'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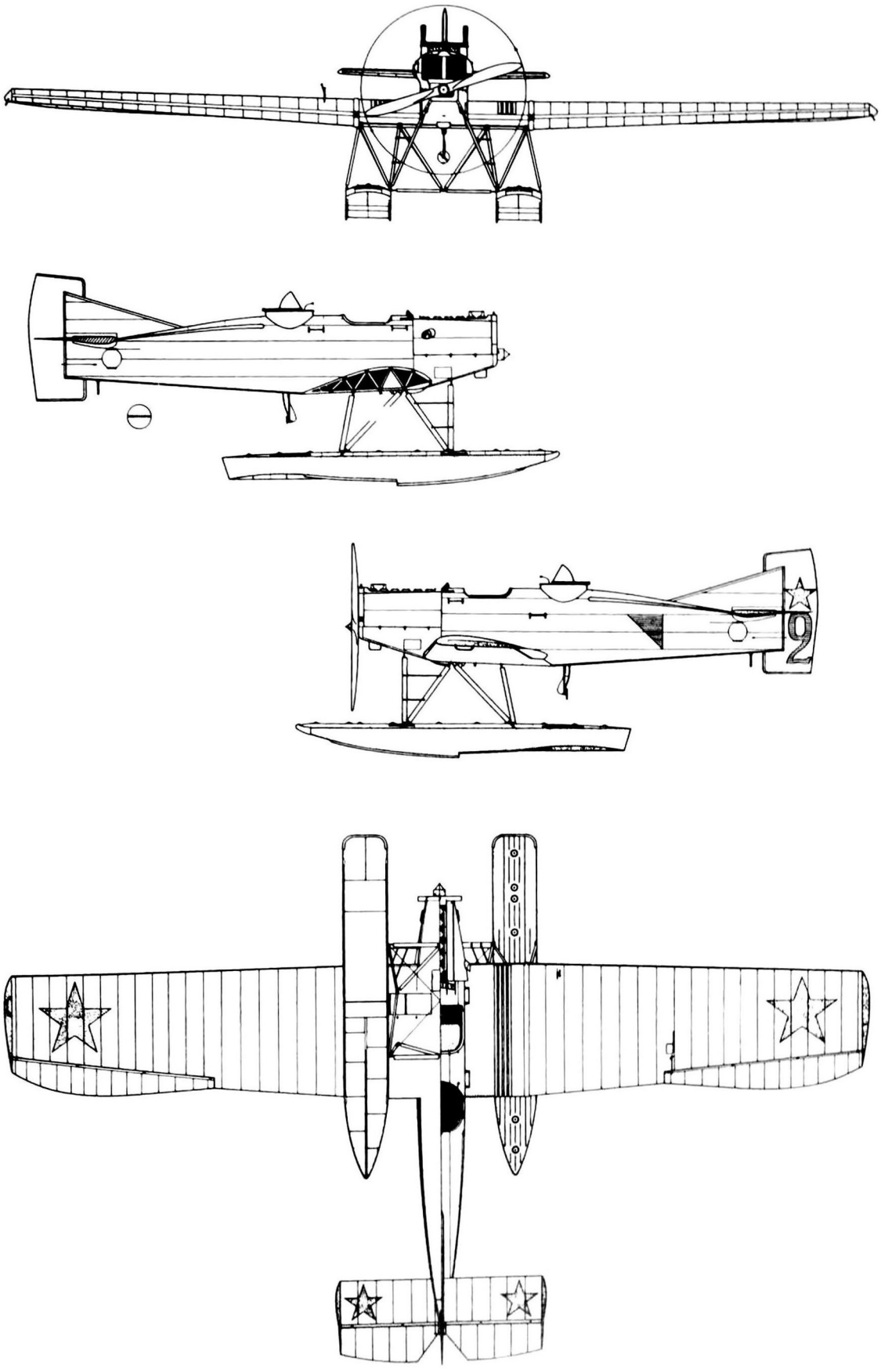

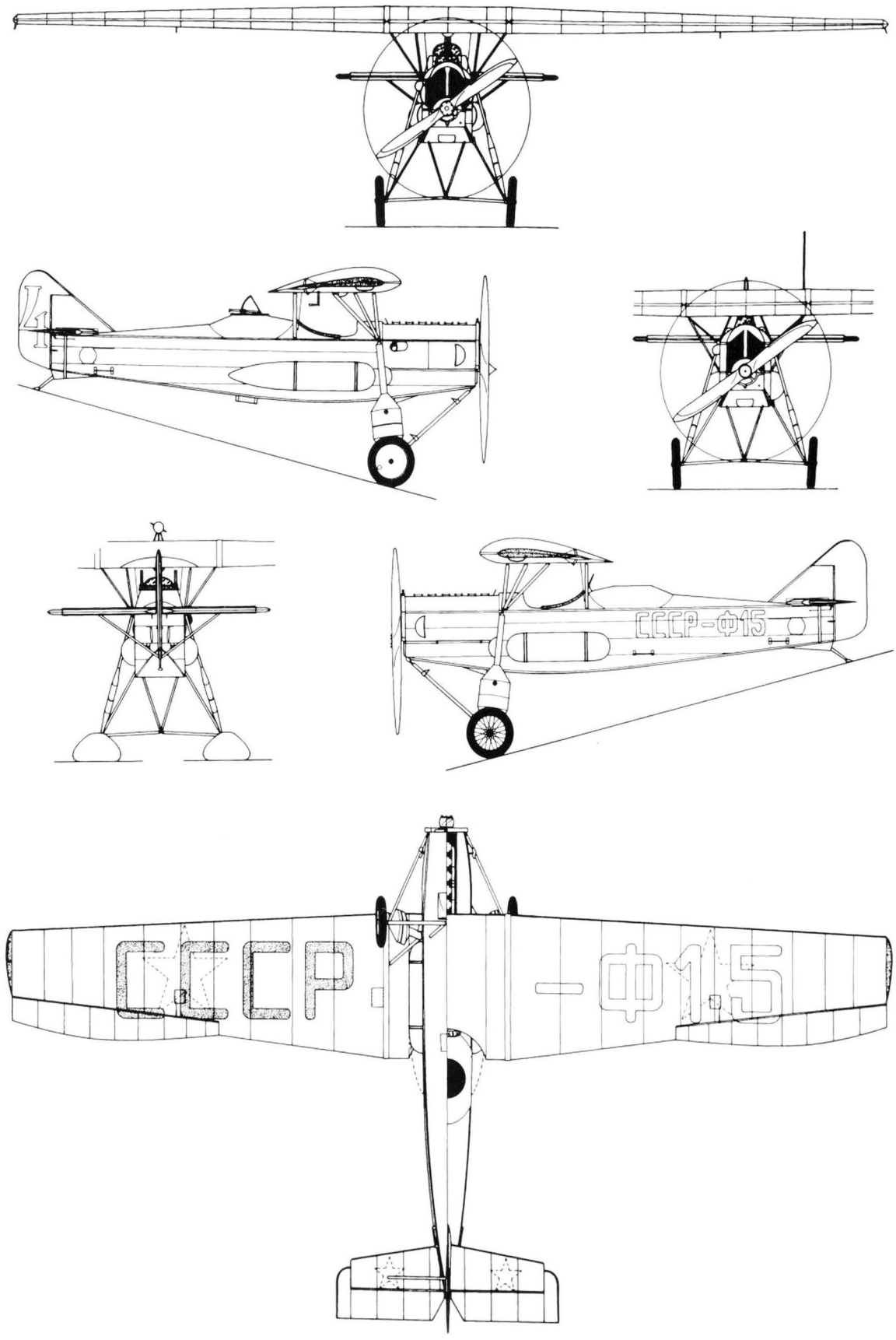
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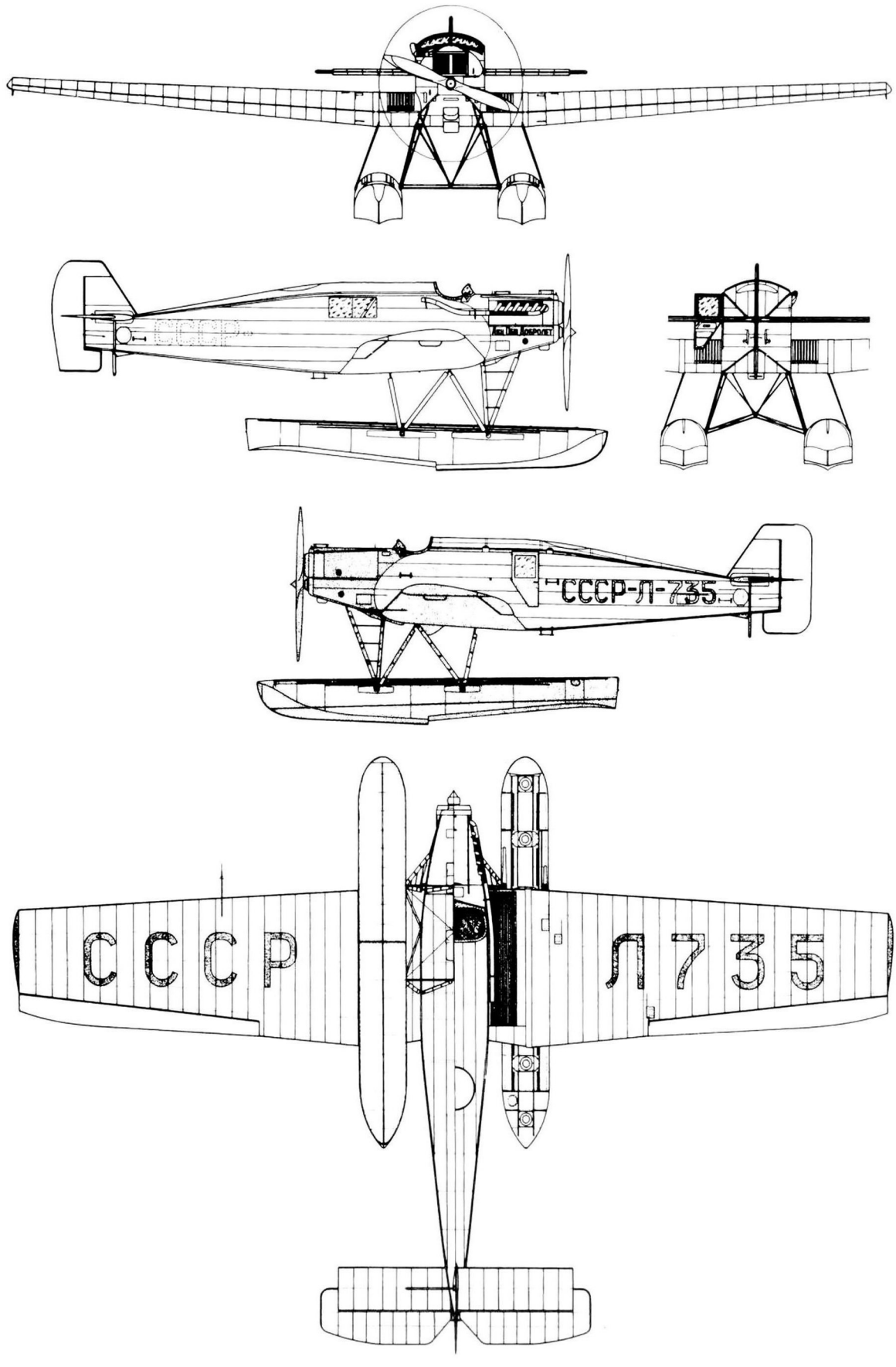
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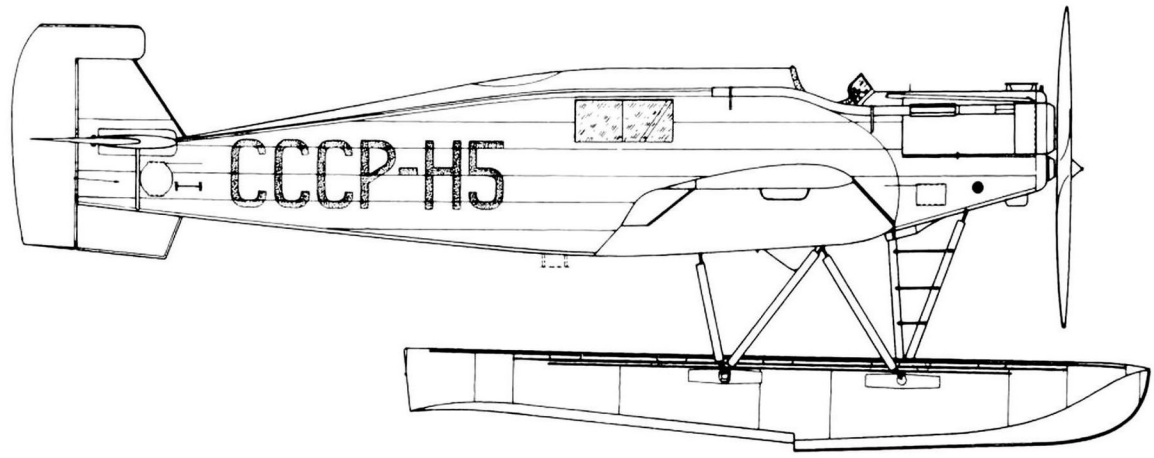
СССР Л735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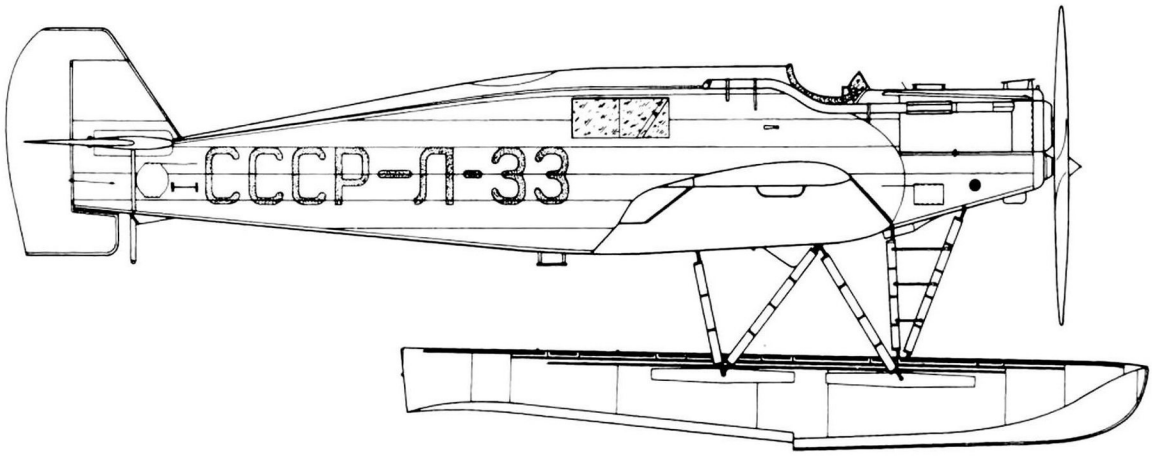
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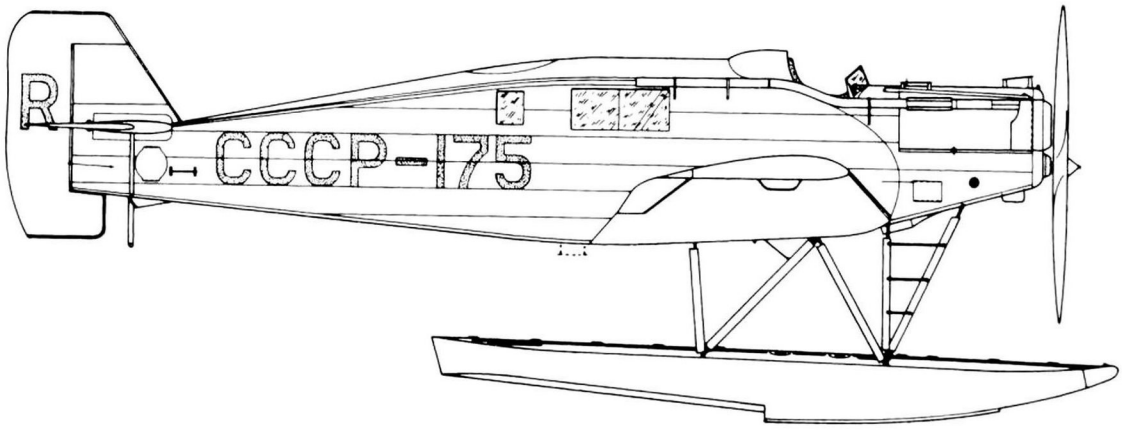
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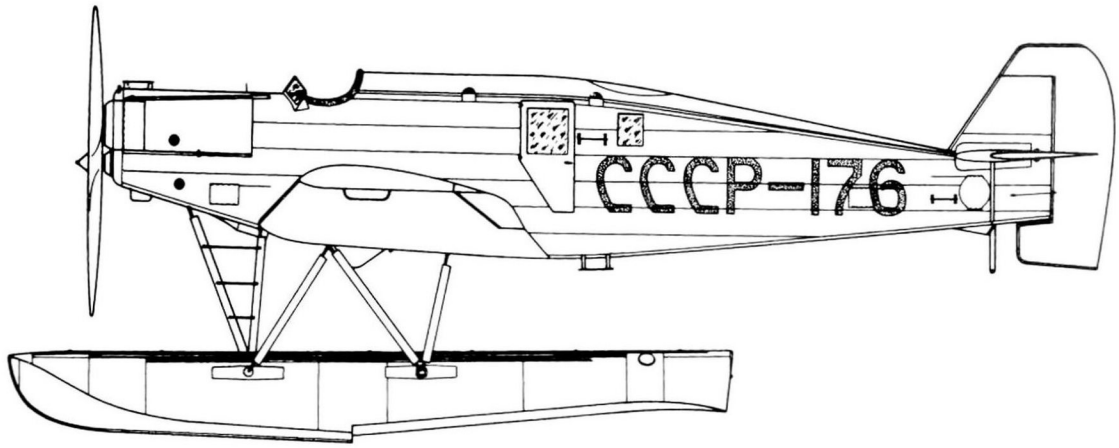
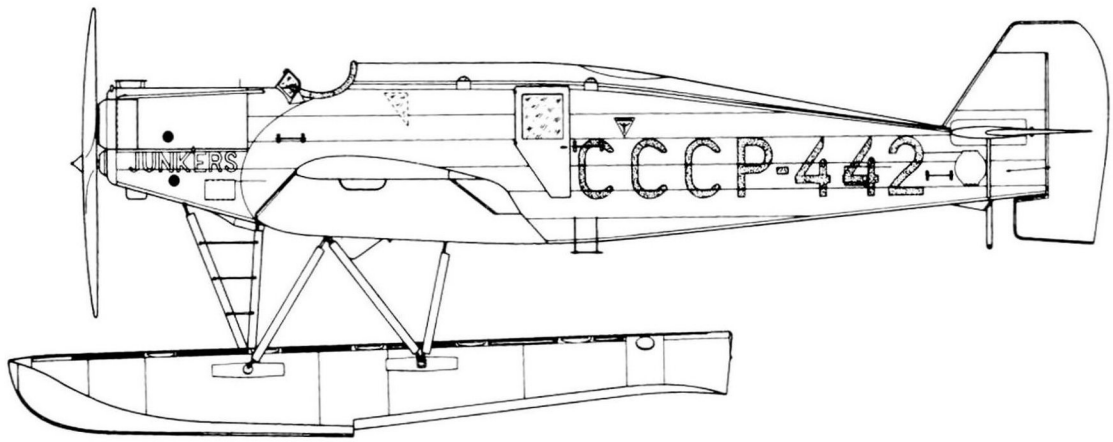

СССР-176


JUNKERS
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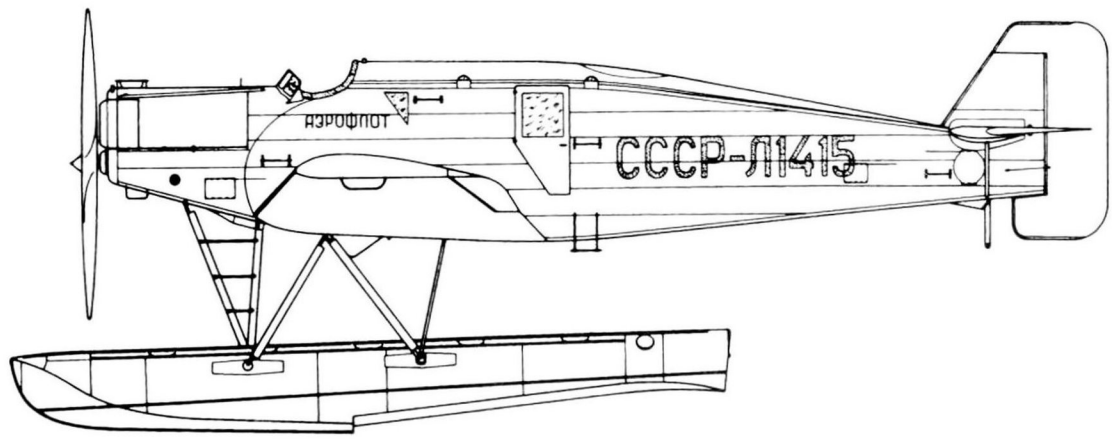
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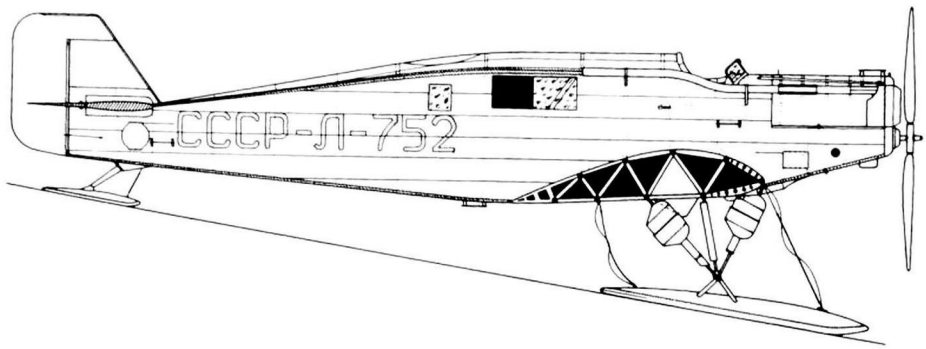
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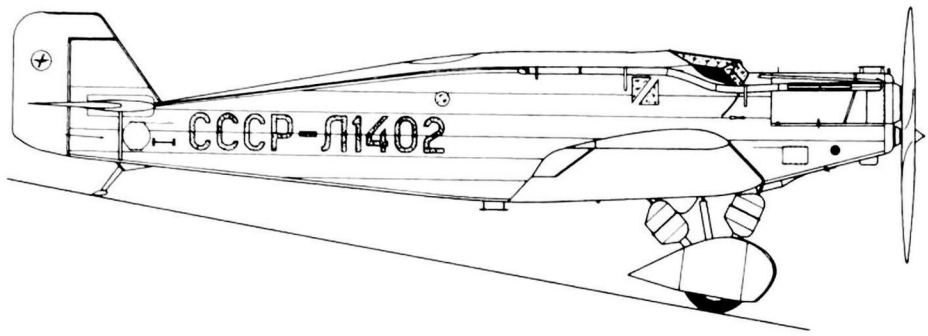
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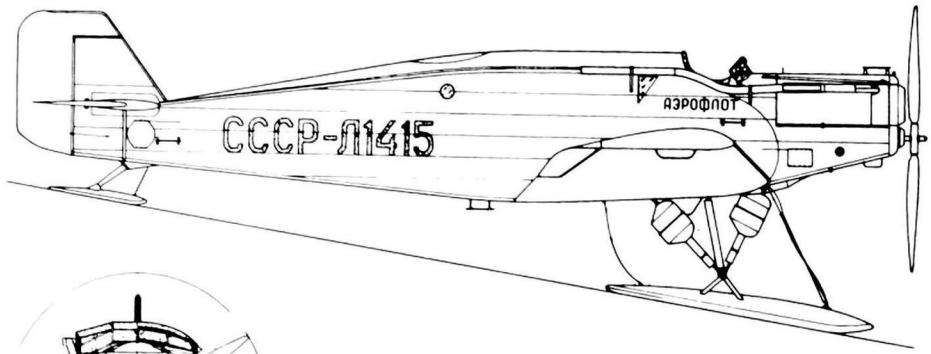
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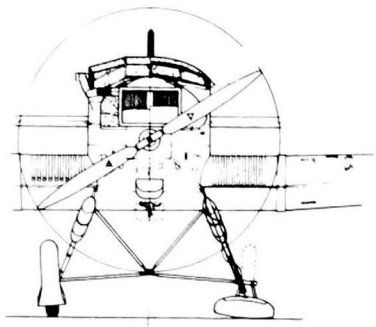

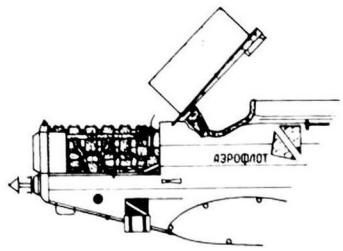
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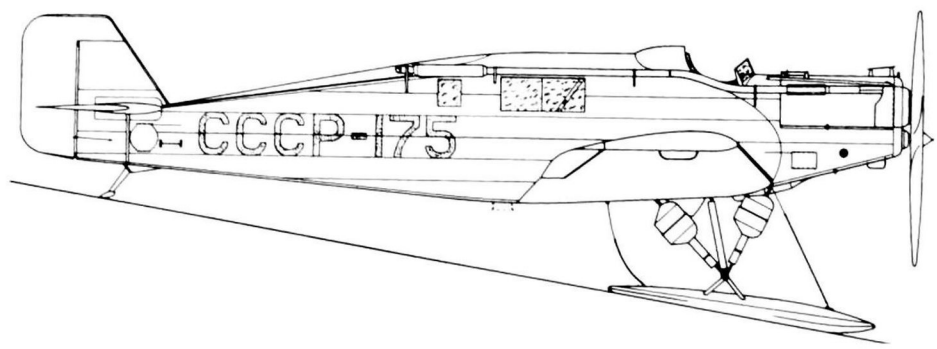
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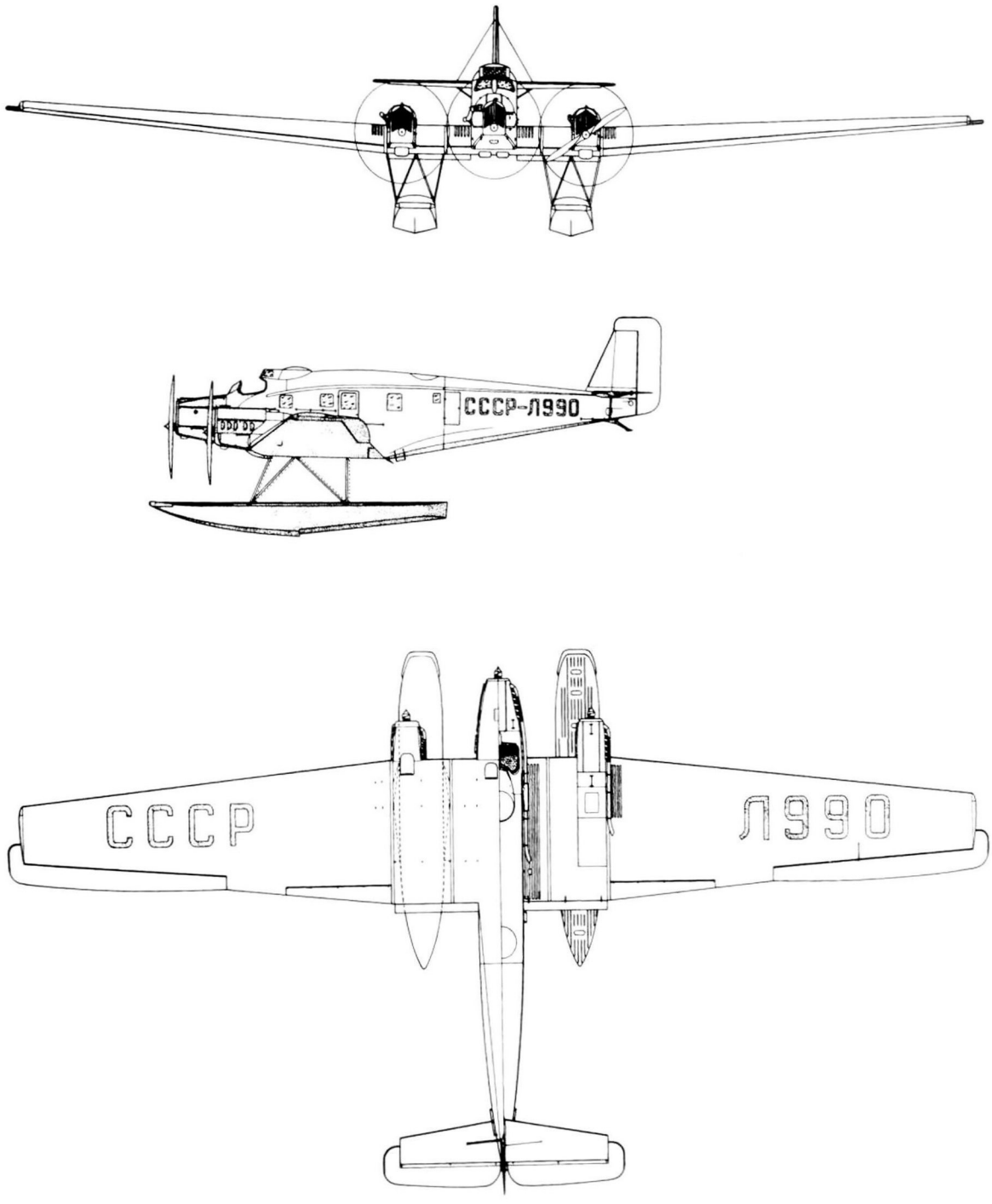
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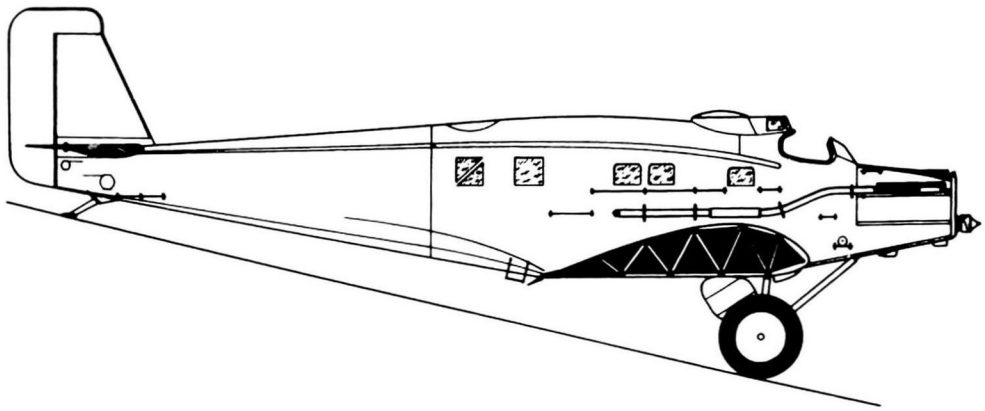
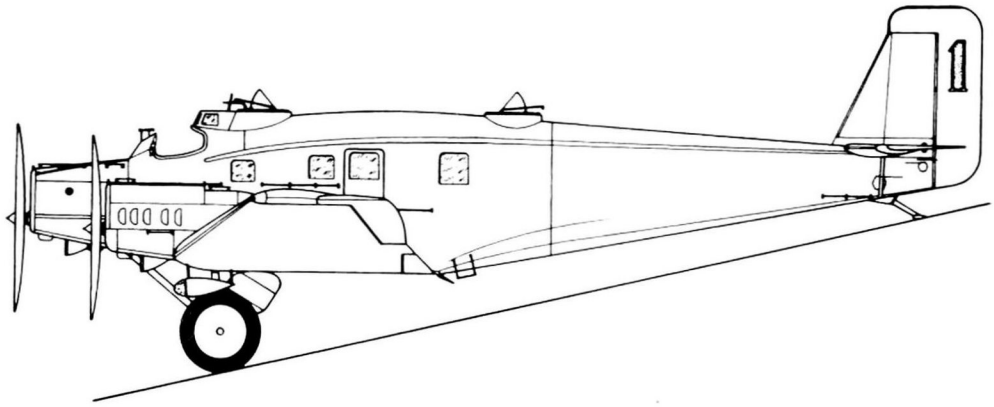
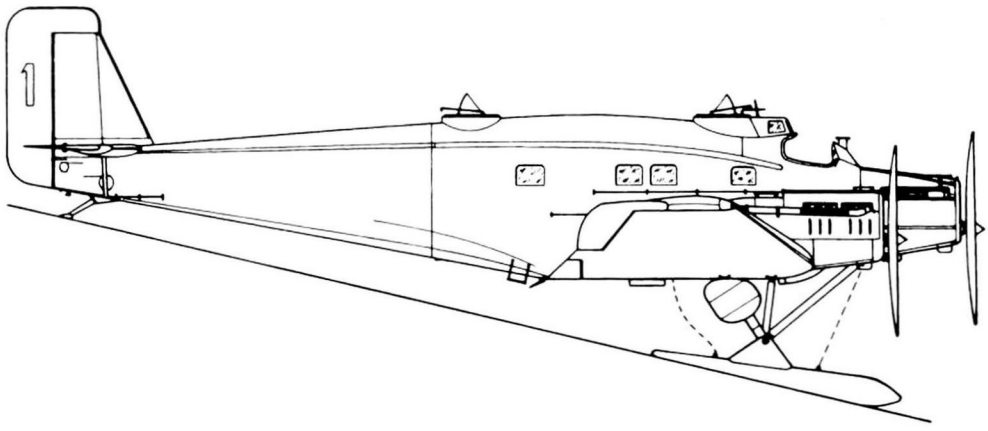
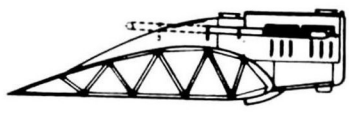
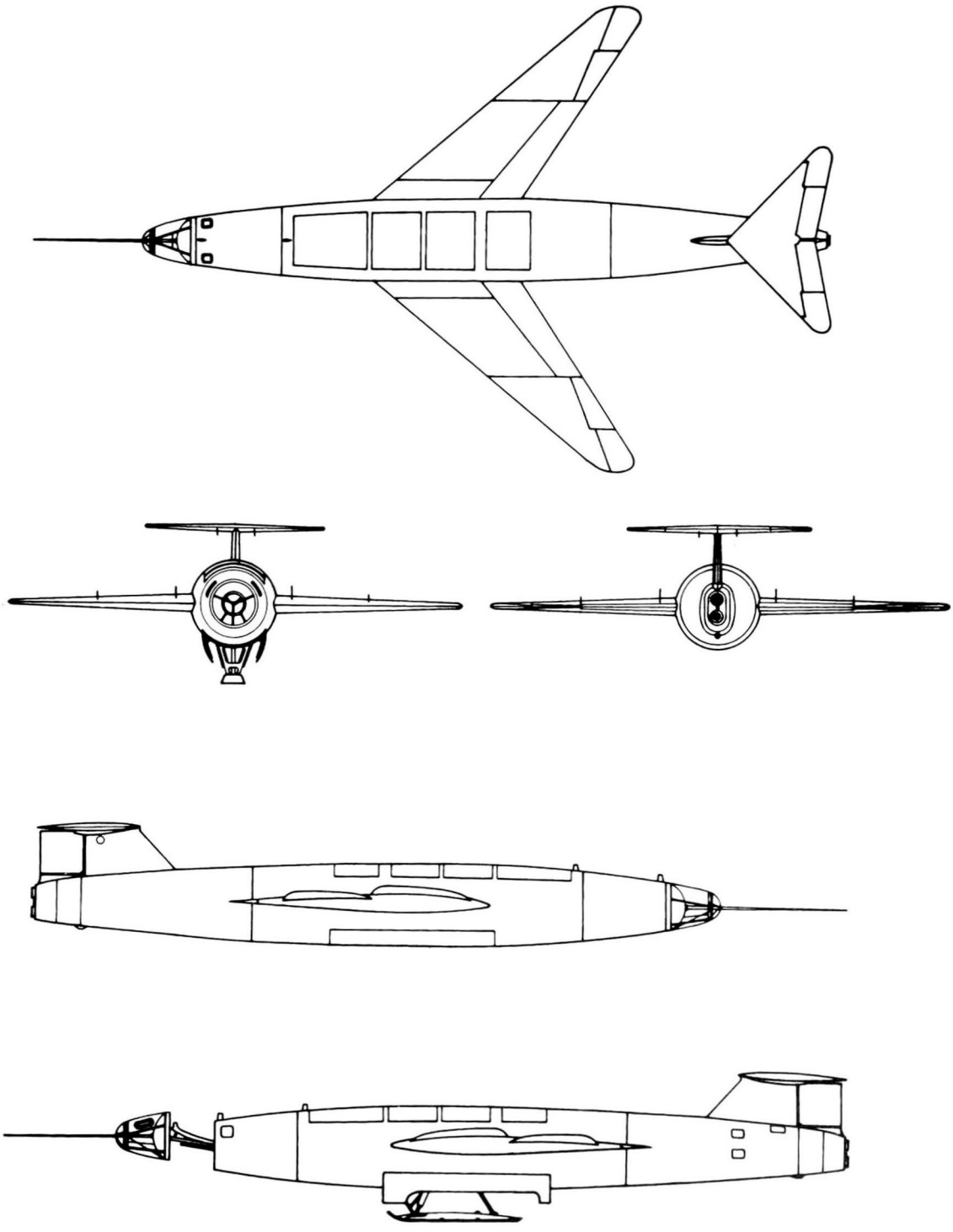
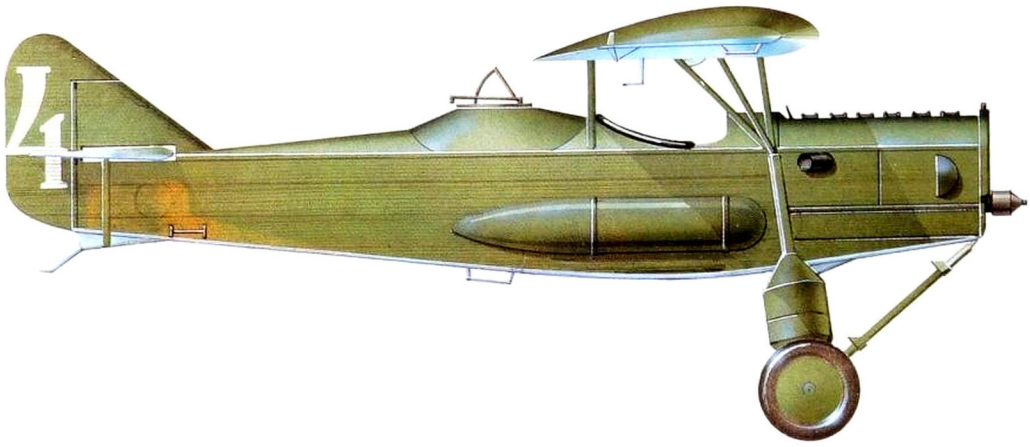




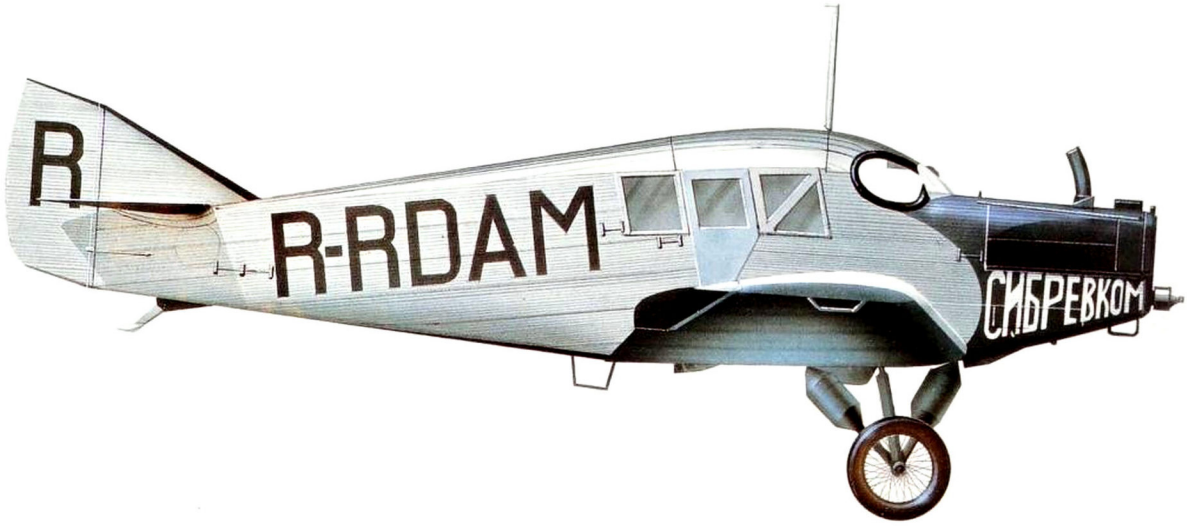




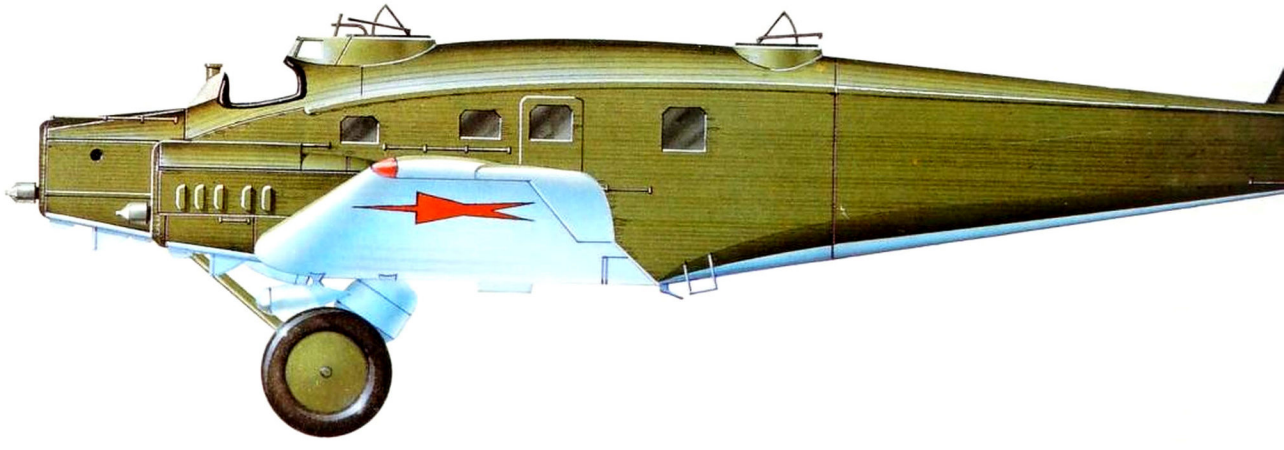


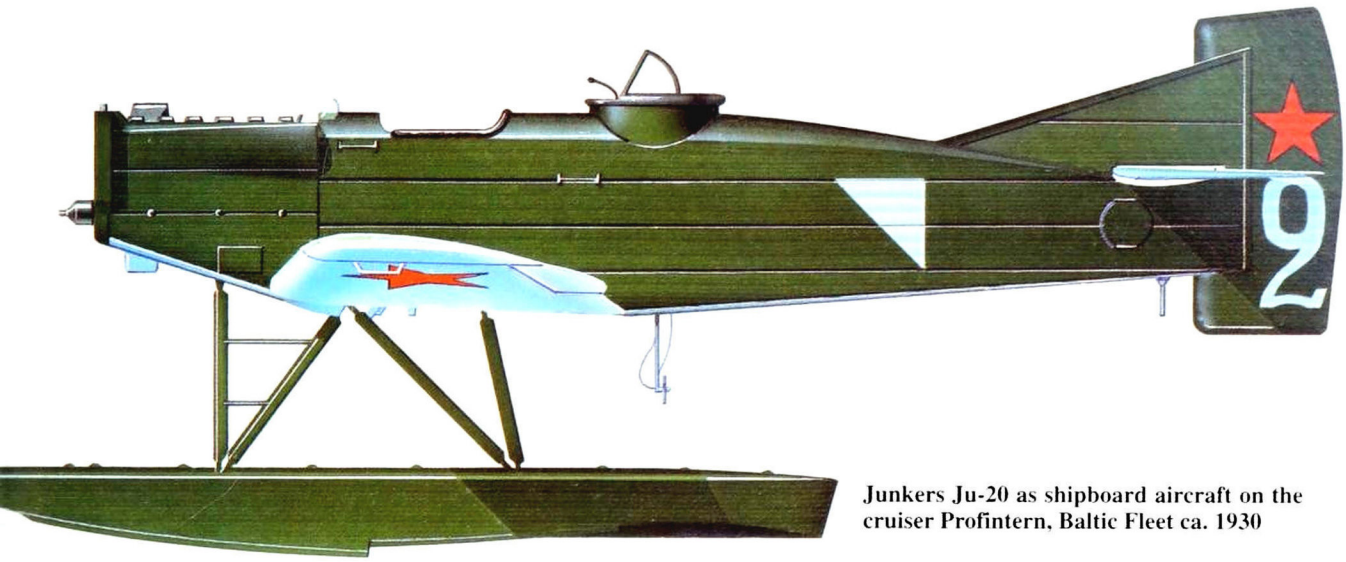


Junkers J-21, 2nd Aviation Division, Karshi, Central Asia, 1925-26

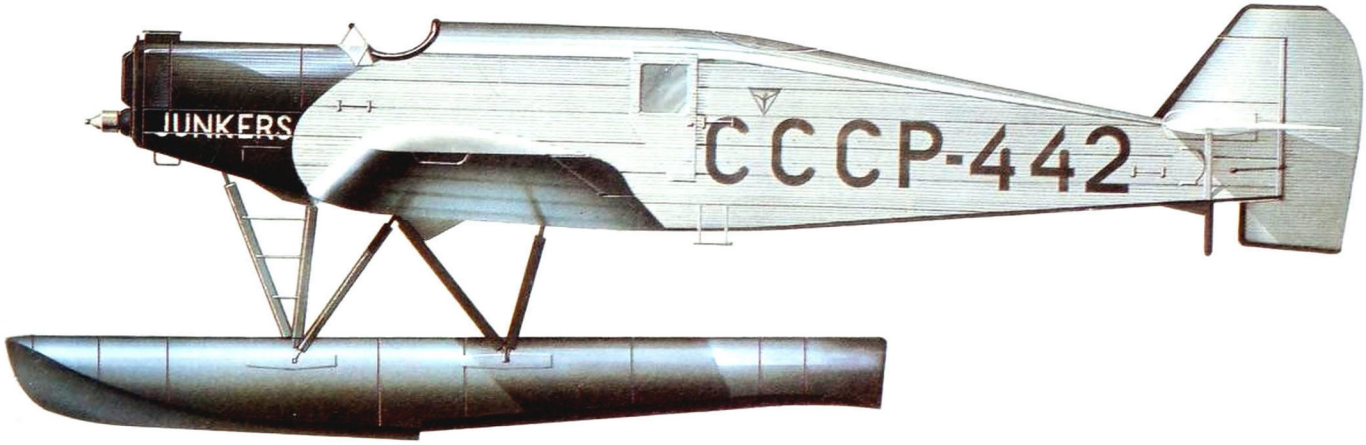


Junkers F-13 "Sibrevkom," R-RDAM, W.Nr. 590, Altay ca. 1924



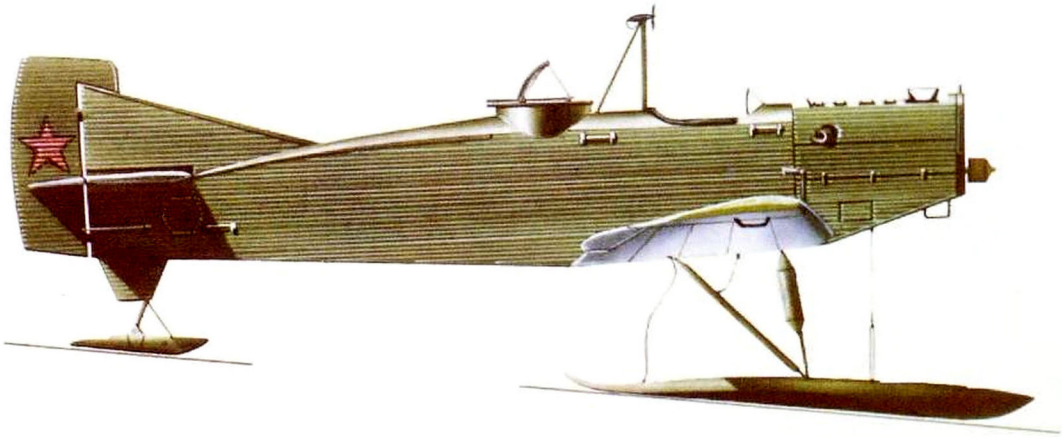


Junkers Ju-20 as shipboard aircraft on the cruiser Profintern, Baltic Fleet ca. 1930

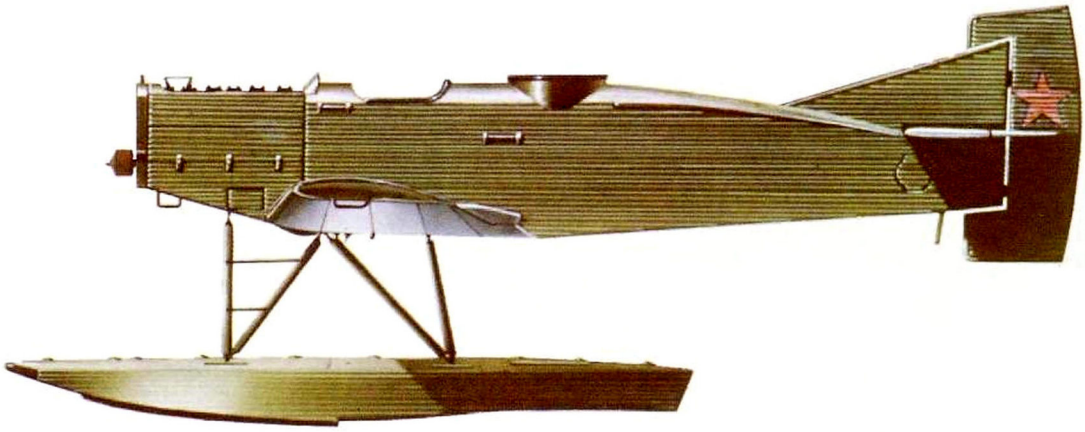


Junkers PS-4 (W-33), Siberian Air Lines, ca. 1930

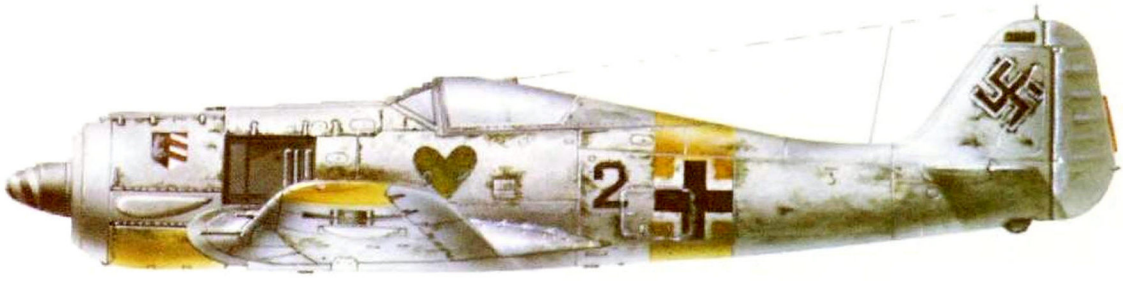
Junkers G-1 (K-30), Leningrad Military District, ca. 1930



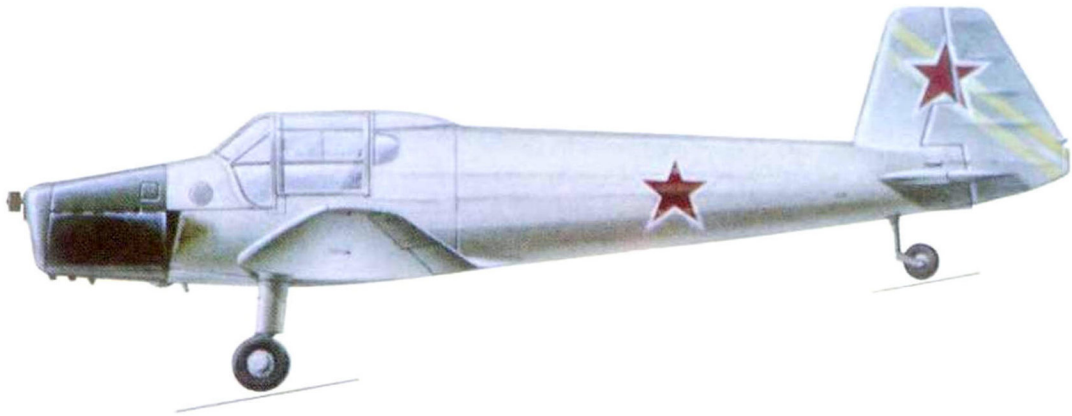
Junkers Ju 20 with skis, Fili, Moscow, winter 1924-25



Junkers Ju 20, 31st Reconnaissance Group, Oranienbaum, Leningrad 1925

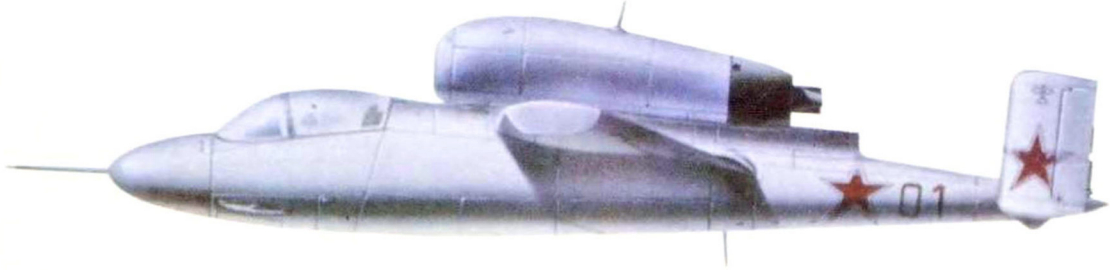


Focke Wulf Fw 190 A-4, W.Nr. 2310
JG 54 Grünherz. Aircraft captured on 16 January 1943 after forced landing on Lake Ladoga.

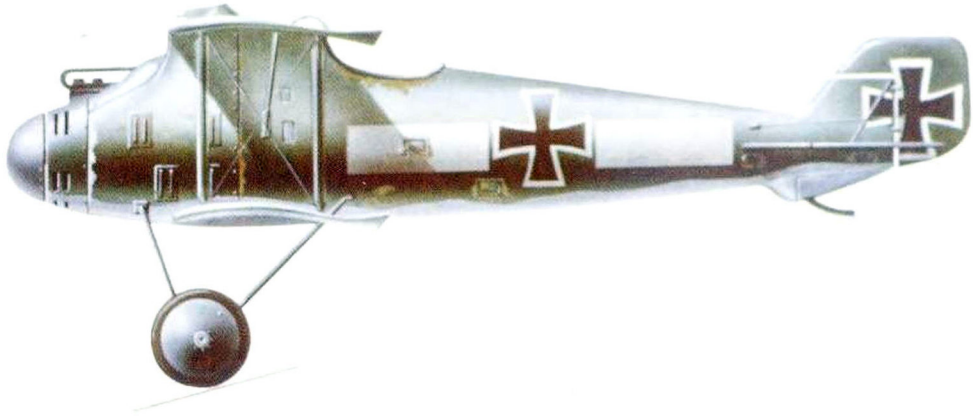


Bücker Bü 181
NII VVS, 1945-46

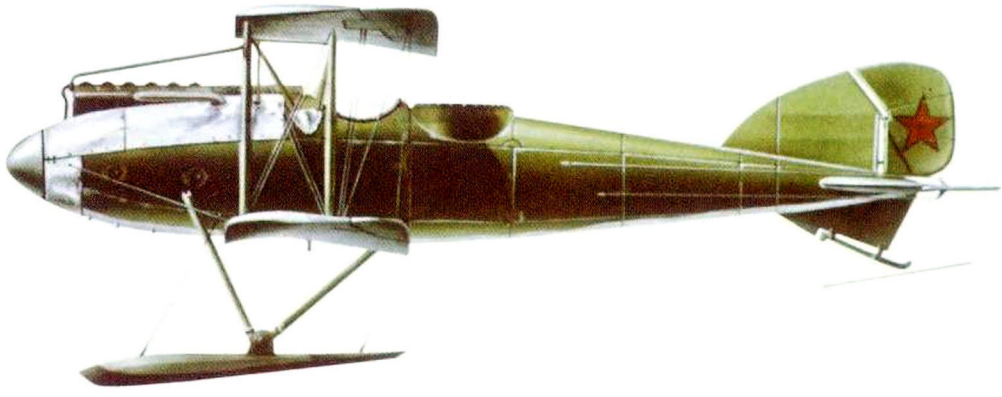
Junkers Ju 52/3m
Military transport service 1944-45.



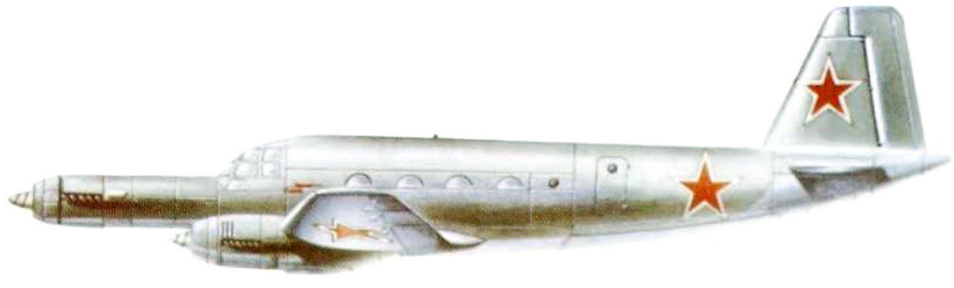
Heinkel He 162 A-2
NII VVS 1945-46



Roland D.II
Captured in the Ukraine 1917.



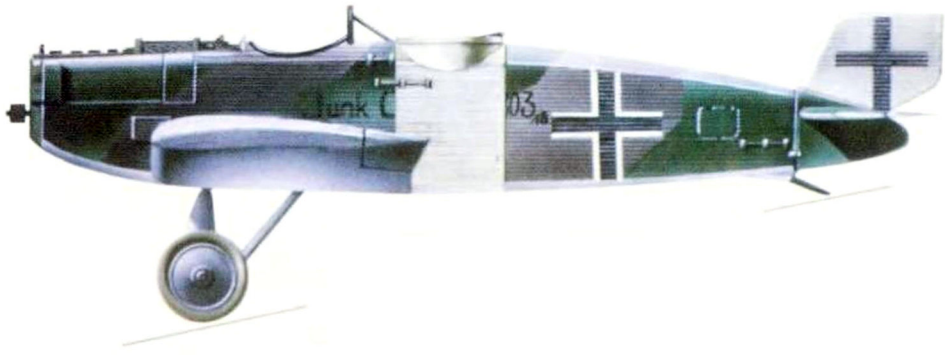
Albatros C. XII
Red Army 1920-21



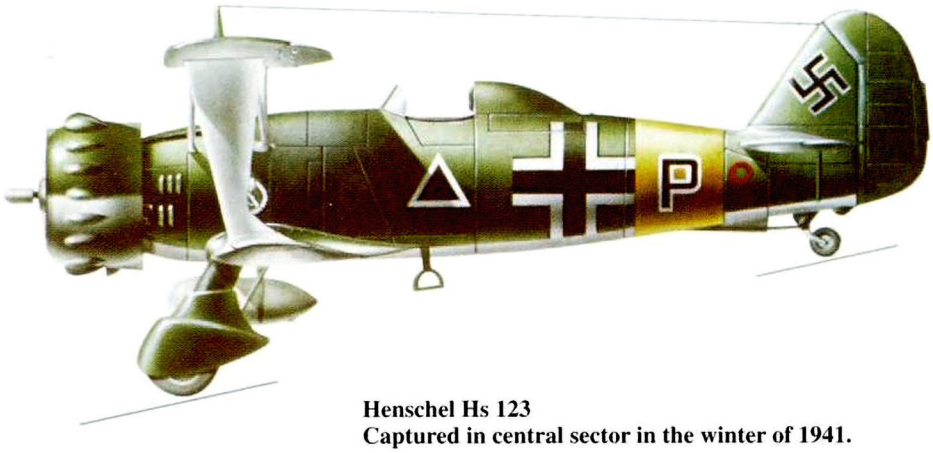
Junkers Ju 252
NII VVS 1946-50

Arado Ar 196 A
1950-55

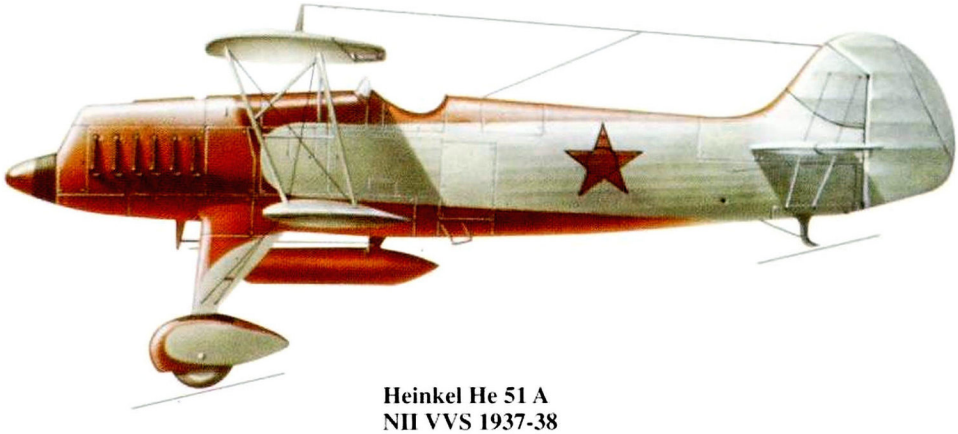
Henschel Hs 126
Soviet reconnaissance group, winter 1941-42l.



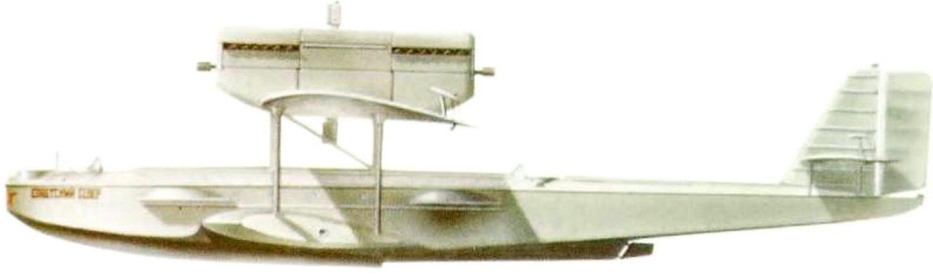
Junkers CL. I 1803/18 of FA 417, captured by Soviet forces in Lithuania in 1919.



Henschel Hs 123
Captured in central sector in the winter of 1941.



Heinkel He 51 A
NII VVS 1937-38



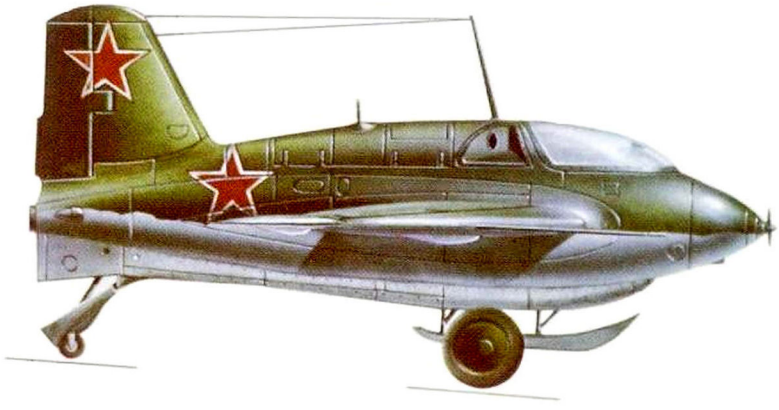
Dornier Wal "Sovietsky Sever," 1928

Junkers F 13

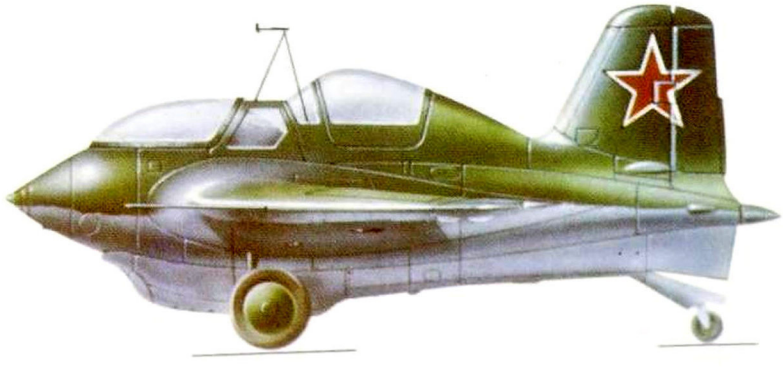
Junkers Ju 21 "Arseny"

Focke Wulf Fw 189 A-2, W.Nr. 2274
Stab I./NAGr. 5, transferred from Sweden to the USSR on 28 August 1945

DFS 346 P unpowered research aircraft.

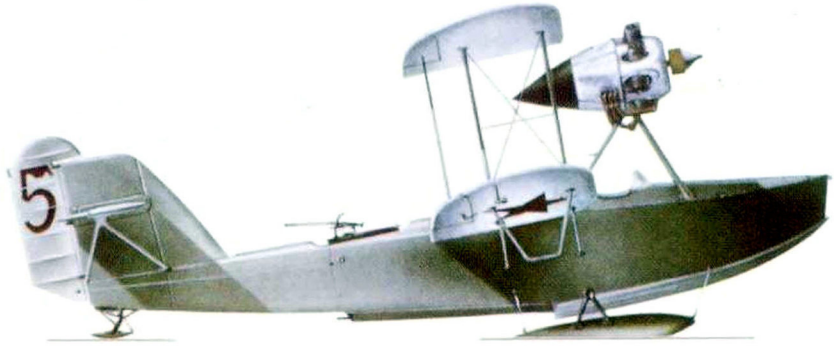


DFS 346-3 rocket-powered research aircraft.

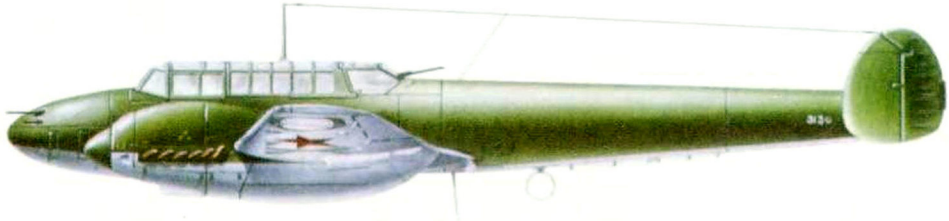


Messerschmitt Me 163 variants at the NII VVS.

Junkers JuG-1



Heinkel KR-1



Messerschmitt Bf 110 C

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ABBREVIATIONS & TERMS

Dobrolet	airline (add name)
Carb	central maintenance facility
N II VVS	Air Forces Test Center
N II GVS	Scientific Institute for Civil Aviation
RKKVF	Red Air Force of the Workers and Farmers
CAGI	Institute for Aerodynamics
SNKh	National Economic Council
ODVF	Association of Friends of Aviation
R.S.F.S.R.	Russian-Soviet Federative Socialist Republic
Mossoviet	Supreme Soviet
Presidium VSNKh	Presidium of the Soviet Economic Council
Sibrevkom	Revolutionary Committee of Siberia
Prombank	Industrial Bank
Agitsamolet	Propaganda Aircraft
Pravda	Truth (newspaper)
Mostorg	Moscow Store
Gosplan	Five Year Plan
Selskosouz	Association of Cities

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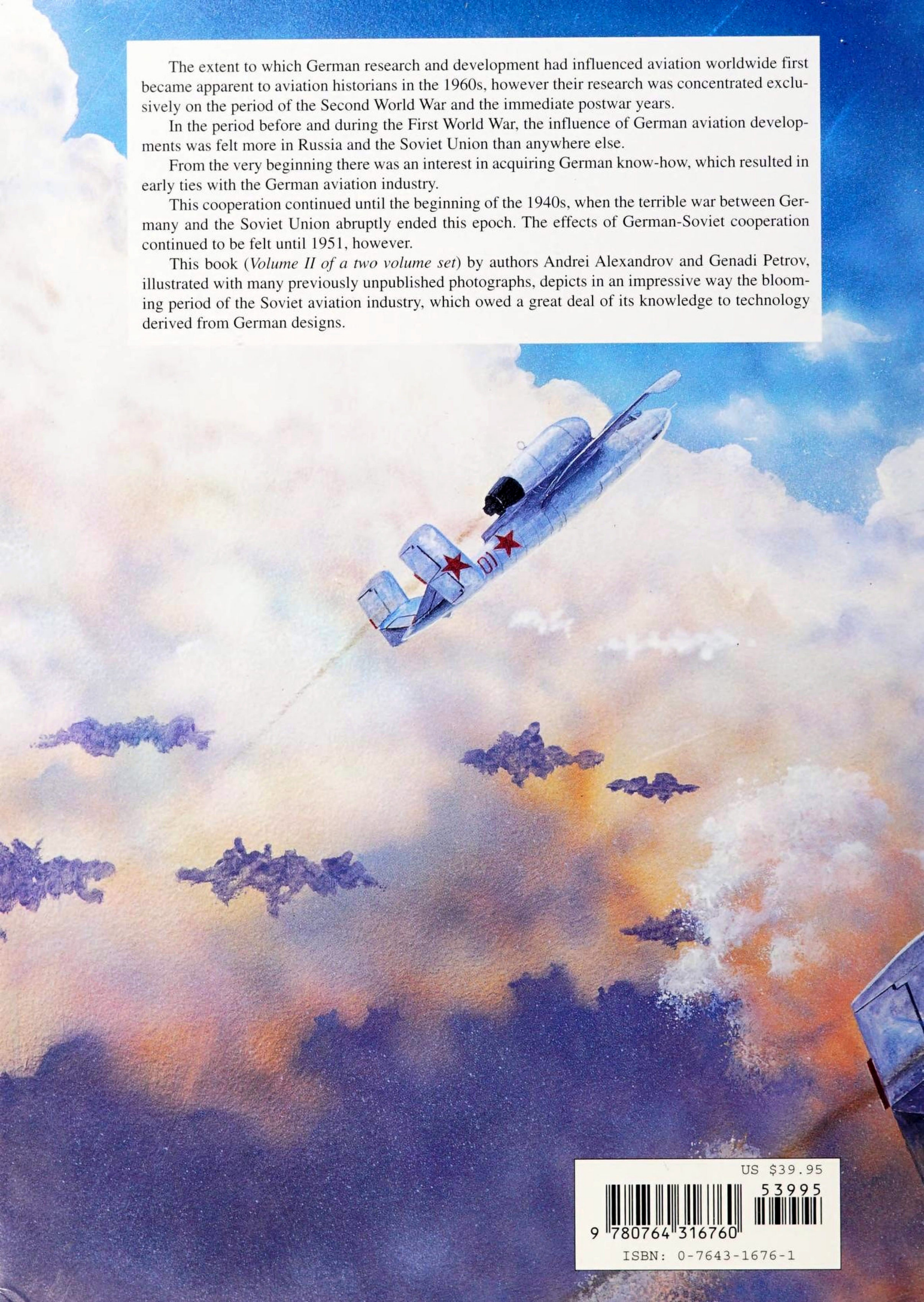

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